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The Bancroft Memorial Lecture.[1]

THE LIFE AND INFLUENCE OF JOSEPH BANCROFT, M.D.

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NEARLY a century has passed since Joseph Bancroft settled in Brisbane, and 65 years have gone since his death. His many-sided activities — medical, scientific and public — gained for him a special place in the life of this community and in the regard of his contemporaries. In later years his memory, reverently fostered, gave root to a personal tradition that is unique in Australian medical history. This is the honoured tradition of a great colonial doctor, the acknowledged leader of his profession in this State, of a distinguished scientist and of a public-spirited citizen.

The figure of Joseph Bancroft looms through the years as a reminder of untiring service and as an inspiration for future days. It is hoped that his story, recalled in this thirty-third Bancroft Oration, will display something of the character and influence on which the Bancroft tradition is based. It is not a story of dead yesterdays, but of times of foundation and enterprise.

[1] Delivered at a meeting of the Queensland Branch of the British Medical Association, at the Medical School, University of Queensland, on September 10, 1959.

Early Life and Marriage.

Joseph, the only child of Peter Bancroft and Mary Lane, was born at Stretford, near Manchester, in 1836. His mother died when he was young, and his father, in a second marriage, had three other children. The Bancrofts were of farming stock, long resident in the district, and Joseph was reared on his father's farm.

After a liberal education, he commenced his medical training as apprentice to Dr. Jeremiah Renshaw, of Sale, in Cheshire. A form of apprenticeship at this time was "to serve in and be taught the arts, mysteries and profession of a surgeon, apothecary and man-midwife". Apprentices lived with their masters, and gained practical experience by assisting in the work of the practice.

Joseph's medical studies were continued at the Manchester Royal School of Medicine and Surgery and at the Manchester Royal Infirmary. He was a capable student and in many subjects gained prizes, which consisted of books and cases of instruments. One of the latter was a polished wooden case lined with red velvet, holding 12 scalpels and bistouries with elegant ebony handles.

In 1859, in London, he obtained the qualifications of Member of the Royal College of Surgeons and Licentiate of the Society of Apothecaries, and the same year received the degree of Doctor of Medicine of the University of St. Andrews.

While very young, Joseph Bancroft married Ann Oldfield, the daughter of a neighbouring family. Two daughters were born while he was a medical student, the elder of whom died in infancy. His only son, Thomas Lane, was born in Nottingham in 1860. Thomas, and the surviving daughter Louisa, later came to Brisbane with their parents.

Life in Nottingham.

Soon after his graduation, Joseph Bancroft commenced practice in St. James Street, Nottingham, where he remained for about five years. Little is known of his early professional life, though it is clear, from accounts of his work soon after his arrival in Brisbane, that he became a keen and self-reliant practitioner.

By this time he was also a devoted naturalist, and had laid the foundations of his wide knowledge of later days. He was among those who helped James Youl with his pioneering work in the establishment of salmon and trout in other countries, and assisted in packing the first consignment of trout eggs to reach the Australian colonies alive, after other attempts had failed.

For three years Bancroft was president of the Nottingham Naturalists' Society, and on leaving for Australia he was made a life member, and presented with an inscribed testimonial and a farewell gift of books and compasses.

He became interested in Queensland through the accounts of Mr. Fred Walker, a resident of the colony, and considering the English climate too severe for his health, which was poor, he decided to settle there. The only information available on the nature of his ailment appears in his diary shortly before his departure for Australia. He writes of a visit paid by him to a grumbling Glasgow doctor, for a certificate, and follows with the note: "Dropsy better but still some albumen in the urine."

The Voyage to Australia.

In June, 1864, Joseph Bancroft embarked at Glasgow as ship's doctor in the *Lady Young*, a paddle steamer of 523 tons, for the voyage round the Cape to Queensland. He was accompanied by his wife, his two children — Louisa, aged six years, and Thomas, aged four — and his brother-in-law, George Oldfield. On the four months' voyage calls were made at Kingston in Ireland, St. Vincent, St. Helena and Capetown. Bancroft kept a journal of the voyage, of which only the earlier part, to his arrival at St. Helena, now exists. This is in the possession of Dr. M. J. Mackerras, and forms his only diary record.

Bancroft had been ill for some time, and was still ailing at the time of his departure. The first part of the voyage was miserable, with boisterous weather, seasickness and damp quarters. Most of the people were sick, and he was kept busy. "This is wretched work", he wrote on June 20, 1864, and the next day, after describing the rough seas, he added: "Don't ask me to come to sea again." However, later, when the weather became fine, and especially when the fish would not bite on his lines, he complained of feeling dull for want of occupation. Among those under his care was a woman who took fits, and another who lost her reason. A patient with acute pulmonary tuberculosis occupied much of his attention, and there are frequent entries of long night watches with him.

Apart from his medical work, Bancroft's interest was in natural history, and his diary is filled with the notes of a keen observer. He had already reached that stage at which he was described in later years by his friend, Dr. Ernest Sandford Jackson, as "being utterly mad about it". Ashore and at sea, he was curious and absorbed in everything about him. He watched for birds and caught them on lines, fished for strange species, dissected and preserved the flying fishes that fluttered aboard and collected sea-weeds, shells, crustacea and plants—indeed it seemed he gathered everything. Later he sent a collection of such treasures to his friends of the Naturalists' Club at Nottingham.

Here is his account of a thrilling day at St. Vincent:

> The surf cast us ashore on a sandy beach . . . Hermit crabs are in every shell. Corals and various polypi are on the rocks and in the little water pools . . . Found the bladder of a Physalia and a blue membranous animal shaped like a limpet . . . A stormy coast of black basaltic boulders and coral and shell strata. Had our lunch in a gully where some eagles came to see us. Got a plant in flower like Lavender and a bush like Tamarisk also in flower. Found the whale and got some whale bone. Corals &c. Bathed at the wreck on which we got. It groaned and creaked with the surf. Lost stocking and went to ship in the boat.

The *Lady Young* called at Melbourne and Sydney, and reached Brisbane on October 29, 1864.

Early Years in Brisbane.

Brisbane in 1864 was a straggling, picturesque colonial town of about 12,000 people. In the five years since the separation of the colony from New South Wales, the town population had more than doubled, in the commencement of the stable expansion of the new State. The town was practically new, despite its penal occupation from 1824 to 1839, and according to J. D. Lang (1861), there was little to show, when the country was thrown open for settlement at the end of the convict days, "besides a few rickety buildings which were tumbling down". Now the settlement was growing rapidly. Small bark huts were intermixed with pretentious buildings, and accommodation was scarce and, for many, primitive. Areas of uncleared bush protruded into the town, and travellers mention the rich beauty of the dense scrub-lands of the neighbourhood. One writes of the ring of axes as the clearings extended, and of the heavy perfume of gum, wattle and tea-tree within a mile or two of the post-office.

The water supply of the town, carried in casks by dray from a dam near the junction of Roma and George Streets, was already outgrown. Household supplies, caught from the shingled roofs, were stored in barrels, for iron tanks had not yet appeared. "The mosquitos", notes a letter of the time, "bid fair to drive us mad."

There were 15 doctors in practice in Brisbane at this time. The Brisbane Hospital still occupied the gloomy quarters of the old Convict Hospital in George Street. The Lady Bowen Lying-in Hospital, with 11 beds, had been opened at Spring Hill the previous year.

On his arrival in Brisbane, Joseph Bancroft was still in poor health, and so did not at once commence practice. He obtained an area of virgin scrub-land on Enoggera Creek, on the outskirts of the town. In this place of surpassing beauty he built a house, which he called Kelvin Grove, after the gardens of that name in Glasgow. This house gave its name to the suburb that grew up about it. It was situated near the present Normanby Bridge, close to Bancroft Street and Bancroft Park, which were later named in his honour.

Bancroft was a born horticulturist, and at Kelvin Grove he laid out gardens, in which he started the extensive plant studies for which he was subsequently distinguished. Within a short time his property became a visiting place for the townspeople, and picnics and charity fairs were held there. It was said that "he was behind all movements" in the district. Meantime, the still uncleared bush of the neighbourhood had introduced him to the flora and fauna of the new country.

His health rapidly improved, in a way which caused him, ever after, to express his praise of, and gratitude to, Brisbane and its climate. Soon he commenced practice in Eagle Street.

Bancroft began his association with the Brisbane Hospital in 1867, when he became one of the visiting sur-

geons. This was an important time in the history of the hospital, for early in that year it was moved from the Convict Hospital buildings in George Street, where the Supreme Court now stands, to new quarters on Bowen Ridge. The erection of the new hospital began in 1866 and the first patients were transferred there in January, 1867.

In this year, the medical staff of the hospital consisted of an honorary consulting surgeon, Dr. Cannon; four visiting surgeons, Dr. Bell, Dr. O'Doherty, Dr. Gunn and Dr. Bancroft; and a house surgeon, Dr. J. Ruscombe Lansdown. The annual report shows that 581 in-patients and over 4000 out-patients received treatment during the year (Mackerras, 1949).

In the following year (1868), Bancroft was appointed house surgeon to the hospital — a post similar to that of medical superintendent — and took up residence in a cottage in the grounds. Thirty-six surgical patients were treated that year, of which more than half had sustained fractures. Operations included an amputation of the thigh, an excision of the shoulder joint and one abdominal section for ovariotomy — Listerian antisepsis had not yet prepared the way for safe abdominal surgery.

Dr. E. S. Jackson (1923) mentions that Bancroft planted many trees in the hospital grounds at this time, including a Moreton Bay fig tree, which he placed in front of the resident surgeon's cottage and which grew to great size. This attracted flying foxes, which on some nights caused later surgeons to spend time "shying stones and cursing beneath it". He relates how once, in the early hours of the morning, a doctor so engaged discovered that "he had a companion in his misery, who was helping from the opposite side" of the tree, and whose missiles placed him in some danger. This was Mr. D. F. Brown, the dispenser, who doubtless had much to say about the situation. "A House Surgeon once asked Bancroft the best way of dealing with flying foxes when they became a nuisance", continues Dr. Jackson, and adds that he received a brief reply: "Eat them!" Dr. Jackson notes that such laconic replies were characteristic, and tells how he once approached Bancroft for advice as to how he should deal with unfair newspaper criticism. His answer was in one word: "Duelling!" Dr. R. Scot Skirving also recalled a similar type of response by Bancroft to a rhetorical question as to what could be done to move Members of Parliament to adopt compulsory vaccination. "Flogging or small-pox!" was his answer.

Life as a Colonial Doctor.

In 1870 Bancroft resigned his post of house surgeon at the Brisbane Hospital and again became a visiting surgeon to the institution. He then commenced practice at "Carlton", in Wickham Terrace, which still exists, although with recently altered appearance. He was also visiting physician to the Lady Bowen Lying-in Hospital, and retained the post for many years.

Brisbane had grown appreciably in the six years since his arrival. In 1868 a census showed that the Queensland population had increased from about 61,500 in 1864, to over 100,000. There were then 126 doctors in the colony, as well as 154 teachers, 193 criminals, 128 lunatics and 1480 males and seven female Pacific Island labourers.

Bancroft's practice grew, and he built a two-storey brick house at the corner of Ann and Wharf Streets, where he afterwards practised. After the 1914-1918 War this became a soldiers' club and later a nurses' home for St. Martin's Hospital. It was finally demolished, and the Brisbane Hotel is now on its site.

Bancroft was a kindly and approachable man, known for his helpfulness and ready advice, but he was always direct of speech and at times rather irascible. He must have been a striking person, with his long, reddish beard and notable dignity. In summer he wore a three-quarter length tussore silk coat and was perhaps the first Brisbane apostle of appropriate dress. He neither smoked nor "enjoyed the fumes of tobacco", but considered that there was "no narcotic in the world which has been so satisfying to humanity". He took alcohol moderately, while deploring its effects on the hard drinkers of the colony. He was driven about the town in a smart, two-horse wagonette by his groom, James Fulton. On one occasion he narrowly escaped death, when the breaking of a wheel caused his horses to bolt. His carriage was wrecked and the groom was severely injured. Accidents with horses often occurred, and doctors, favouring good horse-flesh, were frequent sufferers. The son of Bancroft's friend, Dr. William Hobbs, was killed, and his colleague, Dr. O'Doherty, seriously hurt in occurrences of the kind about this time.

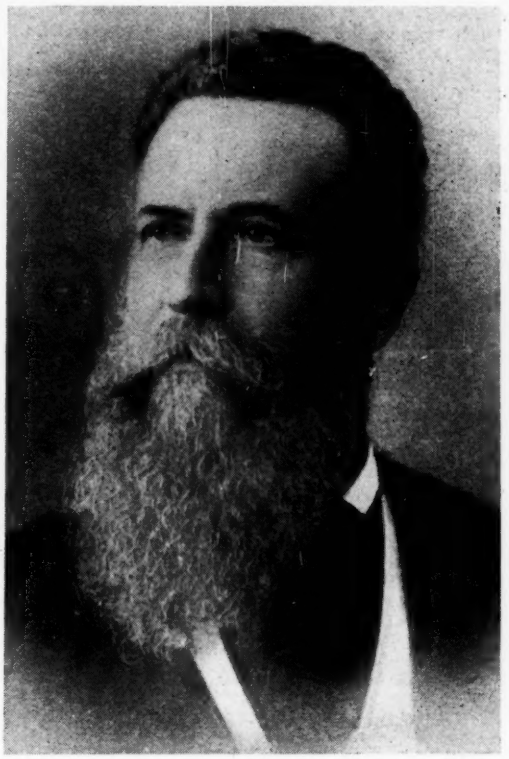

FIGURE I.
Joseph Bancroft, M.D.

As Bancroft's reputation as a physician grew, his services as a consultant were increasingly sought. He was a useful surgeon, and his skill in lithotomy and the treatment of urethral stricture has been especially noted. He often made his own instruments and when in difficulty used anything at hand that appeared suitable. As an instance of this, Sir David Hardie (1900) noted that on one occasion he used a passion-fruit stem when in urgent need of a catheter. Among his inventions was a metal inhaler for giving chloroform, of which it was said that he was the only one who could use it successfully.

Bancroft wrote on a variety of clinical topics, including tick blindness and paralysis, typhoid fever, the bites of poisonous insects, the treatment of snake-bite, leprosy and filariasis.

Having observed that, in cases of sunstroke, patients who had been vomiting made a better recovery than others, Bancroft based his treatment on the induction of vomiting by the rectal injection of ipecacuanha. The patient was "irrigated" with iced water from a water-

can, and chloroform was sometimes administered for epileptiform symptoms (Bancroft, 1884).

He was interested in the treatment of snake-bite, which in his time was the cause of long-continued and often bitter controversy in Australia. This applied especially to the introduction of the intravenous injection of ammonia by Professor G. B. Halford, of Melbourne, about 1869, and of strychnine by A. Mueller, of Yackandandah, Victoria, about 1888. Both methods attracted wide use before their final overthrow. Popular methods during this period included ligature and excision, keeping patients awake by forced exercise — the use of a town band for this purpose is recorded — and heavy alcohol administration. An instance was reported of a girl, aged 19 years, who was given four bottles of brandy during a forty-mile buggy ride to a doctor (Creed, 1884). In an early paper (1867), Bancroft advocated the usual methods of ligation, incision and free use of alcohol, and in unconsciousness, favoured moving the patient about "on his legs in order to keep up the breathing and action of the heart". However, he later warned of the dangers of excessive alcohol, and wrote also of the risk of severe sloughing after ammonia injection. He also stressed the importance of extracting the injected toxin, and invented for this purpose a suction apparatus, which he termed "an artificial leech". He agreed that fear was a factor in producing severe symptoms in snake-bite, and joined Creed of Sydney (1884) in recommending ether anæsthesia as a relief from its effects, and as a circulatory stimulant. He used this method upon an almost pulseless patient at the Brisbane Hospital about 1881, repeating anæsthesia at intervals over a 24-hour period. Recovery followed, and the measure was considered to have been of value (Bancroft, 1884*g*, 1884*j*).

Bancroft was concerned with typhoid fever as a health officer and physician and had also experienced it as a patient. He considered the long-fasting régime, which remained a feature of treatment for long after his time, to be injurious, and allowed a light diet, such as rice and milk, bread and milk or arrowroot. In typhoid, as in other fevers, he used *Alstonia*, the "bitter bark", "to give tonicity to the stomach". In 1887 he advocated that, in order to provide cold treatment, wards for typhoid and other fevers should be cooled by a Bell and Coleman refrigerator. Formerly at the Brisbane Hospital it had been feared that pneumonia would result from the cooling of patients. At about this time, Hare commenced his successful trial of the cold-bath treatment of typhoid, which had been introduced by Brand of Stettin. Hare's results were published in a series of papers from 1887 onwards, and culminated in the publication of his book in 1898. This reported his results in 1902 cases at the Brisbane Hospital from 1887 to 1896 and helped to establish the method as a standard enteric treatment (Bancroft, 1887*a*, 1887*b*; Hare, 1898).

FIGURE II.
View of Brisbane in 1864, the year of Joseph Bancroft's arrival. (Mitchell Library, Sydney.)

Bancroft's Character as an Investigator.

Bancroft was one of the select band of doctor-naturalists whose labours have produced a rich harvest. The new country abounded with problems for his trained, inquiring mind and wide interests. His investigational work was unfailingly marked by an extreme utilitarianism, which may, to some extent, have been induced by the pressing needs of the undeveloped country, but which was clearly inherent in his character. Eminently practical problems, such as the diseases of man and animals, the selection of useful plants and trees and the possible products of the native flora, received his main attention. He had little inclination for more theoretical studies, or for investigations without promise of local application, and tended to be sparing with his praise when these were performed by others. Occasionally he became impatient with local workers who were

engaged in such subjects as the fossil remains of extinct species, and of them he once exclaimed: "Why can't they busy themselves with something useful?"

Bancroft's character as an investigator was considered by Dr. E. H. Derrick, in his memorable Bancroft Oration of 1948. This delightful analysis sketched the labours, strivings and methods of a select group of research workers, in a search for "the prescription for their success", and tendered a classification of these workers, according to the qualities that enabled them to produce their notable results. Joseph Bancroft was placed in the company of those in whom a capacity for observation and experiment, rather than for theoretical synthesis, was the essential character responsible for their attainments. He was allowed also to have a foot in the con-

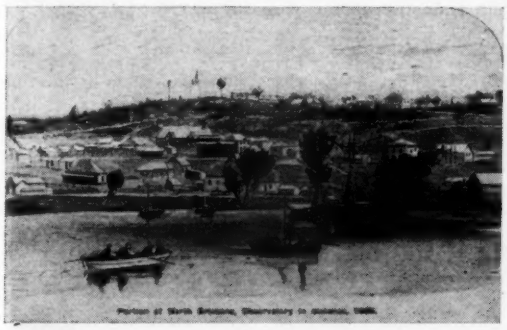

FIGURE III.
View of Brisbane in 1865, showing the Observatory in the distance. (Mitchell Library, Sydney.)

gregation of workers in whom inventiveness was a crowning feature. It is possible only to agree with this judgement, as with the thought that "he displayed what might be described as an enlightened opportunism" (Derrick, 1948).

An Overseas Visit.

After 11 years in Brisbane, Bancroft set out with his family, in 1877, for a visit to Britain. Here he stayed with his step-mother at Stretford, saw friends and relatives and introduced his son Thomas, who by this time had completed his schooling at the Brisbane Grammar School, as a medical student at Edinburgh.

He was well received in London medical circles, where he lectured on *Filaria* to the Pathological Society and discussed his interests, particularly in public health, pharmacology and parasitology, with those whom he called "the great names". There is no full record of his busy round, although it included visits to Cobbold, Sir Richard Owen, Ringer, Murrell and others. He also discussed his investigational work at Edinburgh and Manchester.

Unfortunately, the visit was marred by severe winter weather and ill-health. Soon after his arrival he suffered from erysipelas of the arm and was laid up later with severe bronchitis. In a letter from Stretford in April, 1878, he wrote: "I have suffered much, coughing up black spit and becoming quite feverish with it, particularly in London, from which I was obliged to escape twice. The last time I coughed, sneezed and blew my nose incessantly for several days until I left the place."

By the end of their stay, Bancroft and his wife were looking forward with undisguised pleasure to their return to the warmth of Brisbane. In discussing his plans for this, he wrote: "Though we have been seeing all the interesting sights, I cannot say that we have much enjoyed ourselves with the cold and miseries of the place."

After a short visit to Paris, where Joseph discussed pituri with the distinguished chemist, Petit, the Bancrofts, leaving Thomas to his studies, joined their ship at Portsmouth for their homeward voyage.

This was the last time that Joseph Bancroft left Australia. Brisbane, with which he was now firmly identified, was his home, and he referred to himself as a colonial. His praise for what he was pleased to call "this great and glorious country" was unending; for him it was a land of opportunity, promise and health. "The student of medicine and natural science", he wrote, "will find here a field for the development of his health and faculties unsurpassed in the world."

Medicines from Native Plants.

Bancroft was greatly interested in the medicinal possibilities of the Australian flora, and commenced his work in this field during his convalescence at Kelvin Grove, soon after his arrival in Brisbane. While resident surgeon at the Brisbane Hospital, he was already using native gums and barks for the treatment of bowel infections. His extensive pharmacological studies included chemical, animal and clinical experiments — the first-mentioned in his own laboratory, although in later days he sometimes received expert assistance. His interest in this work never waned and he often deplored the limited time he had for it.

One of Bancroft's earliest projects was the investigation of the properties of pituri, the leaves of a plant which, mixed with those of other species, had been reported to be chewed by the aborigines of the interior for their stimulating effects in alleviating fatigue and allaying hunger. From later reports of their content, very small amounts must have been used in any mixture chewed

FIGURE IV.
View of Brisbane in the 1860's, showing Wickham Terrace from the Observatory. (From "Brisbane Centenary Official Historical Souvenir", 1924.)

for such a purpose. A sample of pituri had been brought from Cooper's Creek by King, the survivor of the disastrous Burke and Wills expedition of 1861, three years before Bancroft's arrival in Brisbane. The diary of Wills, recovered after his death, mentions that "some stuff they call bedgery, or pedgery" was given to them by natives and that "it has a highly intoxicating effect when chewed even in small quantities". The material, gathered by the tribes of south-west Queensland, was traded far into South Australia. In Central Australia, according to Cleland (1950), pituri was thrown into water holes in order to stupefy emus, while several species of native tobacco were chewed as a stimulant.

Bancroft became interested in pituri and asked travellers to the inland country to bring back specimens of the plant. In 1872 a police officer brought him a sample from Eyre's Creek, which consisted of dried and finely-broken leaves, in a native bag. The crushed-up leaves were unidentifiable and seeds would not grow.

In a preliminary experiment, an infusion of the leaves caused rapid death in a cat and a puppy. Bancroft then tried it in a series of animals, including cats, dogs, rats, frogs and grasshoppers and later mice, applying it by mouth, injection and skin application. It was found

that the substance at first caused excitement, then irregular muscular action and general convulsion and finally respiratory paralysis and death (Bancroft, 1872).

Later, he received a better sample from an explorer, together with a description of the shrub from which it was gathered. In this sample the leaves were less fragmented, a fact which made their identification possible. Here is a family story of Bancroft's attempt at this:

> He had all the family trying to fit the bits of leaves together and paste them on a sheet of paper, like some frustrating jig-saw puzzle. Looking at the pieced-together bits, he suddenly said, "I think it is a *Duboisia*". He told Thomas (his son) to get his pony and ride out to Kelvin Grove, and bring him some leaves from the cork-wood growing in the scrub there. Thomas did so, and they made an infusion and tried it on the cat.

However, although the cork-wood was a related species, it was not pituri and his search went on. He scoured the scrub for plants with foliage similar to his dried specimens. He also made a 400 mile journey to the head of the Dawson River in search of the plant, but could not find it. Actually the species grew in the arid country far to the west. The identification of the pituri leaves was finally made by Baron von Mueller, the eminent Government Botanist of Victoria, who related them to *Duboisia hopwoodii*.

Although its poisonous nature limited clinical application, pituri extract was tried in cases of debility, on the possibility that it was a nerve tonic, but without success (Bancroft, 1877).

During his visit to Europe, Bancroft left specimens of pituri with a number of investigators, including

FIGURE V.

View of Queen Street, Brisbane, from Edward Street, in the 1860's. (From "Brisbane Centenary Official Historical Souvenir", 1924.)

Fraser of Edinburgh, Ringer and Murrell of London and Petit of Paris. As a result, much information was later published, including the identification of its alkaloid (formerly called piturine) with nicotine (Bancroft, 1879). Later, nor-nicotine was also shown to be present.

The investigation of pituri was extended through the advice of von Mueller, who drew attention to a related species, *D. myoporoides*, as a promising field for research. This was the local cork-wood, already known to Bancroft. In his letter (February 13, 1877) the Baron, who was really a mild and kindly man, suggested that this species should be tried on an aboriginal:

> Let the Doctor try the foliage . . . he could easily for a little payment get a blackfellow to administer small doses of that plant to . . . There could be no danger . . . if the quantity is given cautiously . . .

Bancroft made preparations of *D. myoporoides* and trials were performed on the long-suffering family pets. The extract, on injection, did not kill animals as pituri had done, but caused widely-dilated pupils and intoxication, and later induced sleep. A mydriatic effect was also obtained with direct application to the eye. Bancroft now tried it on ophthalmic patients and found that examination of the eye could be made in a short time. The usefulness of the extract as a mydriatic was confirmed at the Brisbane and Ipswich Hospitals and in Sydney, and it was regularly used in place of atropine by Bancroft and some of his colleagues, and also, to some extent, in Sydney and abroad.

Other properties of *D. myoporoides* were later investigated and in 1894 Bancroft recommended it as a sedative in mental disease and in acute alcoholism. It was also tried for asthma, but the patient to whom it had been given rose in the night under its influence and attacked other inmates of the house with a stick, which caused trouble with the relatives.

The interest which was felt in Bancroft's time in the pharmacology of *D. myoporoides* waned as the years passed. However, this species and the related *D. leichhardtii* were later found to be rich sources of hyoscine, hyoscyamine, atropine and a number of other alkaloids, and formed the basis of a flourishing Australian industry during the last war.

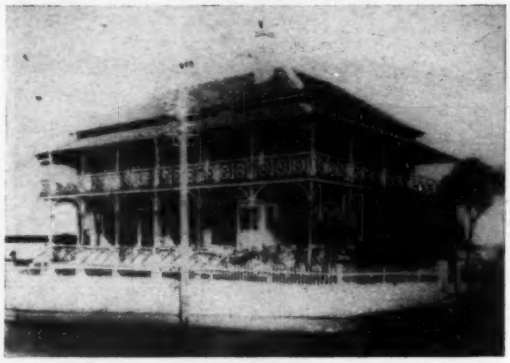

FIGURE VI.

Joseph Bancroft's house, at the corner of Ann and Wharf Streets, Brisbane. (From a photograph taken in the late 1880's, in the possession of Dr. M. J. Mackerras.)

The foundation of this industry, according to Sir Russell Grimwade, resulted from inquiries made in 1940 by Sir Alan Newton, who was then directing the wartime Medical Equipment Control Committee, as to whether hyoscine hydrobromide, already in short supply, could be locally manufactured. Bancroft's work was remembered, and a few ounces were soon made from the leaves of *D. myoporoides*. Research on large-scale manufacture was then undertaken by Drug Houses of Australia and in 1942 a plant for alkaloid extraction was erected in Melbourne. As a result, Australia became the main producer of atropine sulphate, hyoscine hydrobromide and certain other alkaloids for the world market. In 12 years, 180,000 oz. (over five tons) of these were supplied. By the end of the war, the perennial *Duboisias* had displaced European annual plants as the main source of these drugs. However, at this time the Government lifted an embargo which had been previously placed on the export of *Duboisia* leaf, and consequently the greater part of the world's supply of atropine and hyoscine is now made abroad from leaves grown in Australia (Grimwade, 1954; Webb, 1958; White, 1958).

Bancroft also investigated the properties of the intensely bitter bark of the *Alstonia constricta*, locally called "bitter bark", or sometimes, from supposed quinine-like properties, "fever bark". An extract differed from quinine and it was shown at the Brisbane Hospital to have no effect on malaria. Bancroft finally considered it to be of great value as a tonic and it was used for this purpose at the Brisbane Hospital and by many Queensland doctors. He also announced its value in the early stages of typhoid fever. The bark was later exported as a bitter and at one time was used in England in the brewing of beer, when there was a scarcity of hops. In 1952 *Alstonia* was announced by

C.S.I.R.O. to be a valuable source of reserpine, for the treatment of hypertension.

No complete account is available of Bancroft's pharmacological work, but it is clear, from many references, that he investigated a wide range of plants. He frequently exhibited medicinal plants and their products at the Brisbane Societies and also arranged a display of these for the Colonial and Indian Exhibition in London in 1886. For the latter, he wrote an official pamphlet on "Contributions to Pharmacy", in which he reviewed the products of Queensland plants (Bancroft, 1886*a* and *b*, 1894).

Bancroft's work on the native materia medica was continued till his death. At this time, he was a member of a committee appointed by the Medical Society of Queensland to assist in a revision of the British Pharmacopœia, by recommending local products which had been found of value.

Filaria Investigations.

Joseph Bancroft is remembered today mainly through his notable work on filariasis and the association of his name with the worm he discovered. This made him known to the world of science. But it was only one of the distinctions that raised him to a traditional figure, in Brisbane, among his own people. The story of the world-wide search that unravelled the life history of *Filaria bancrofti* and in which he participated, is one of the most interesting in the history of tropical medicine.

The embryo forms of the worm were first described in 1863 by Demarquay, of Paris, from specimens in hydrocele fluid from Havana, Cuba. Within the next few years and in circumstances of publication which made the establishment of priorities difficult, the small larvæ were also discovered in urine or hydrocele fluid in widely scattered places: by Wucherer in Bahia, Brazil, in 1866 (published 1868); by da Silva Lima in Bahia, in 1868; by Salisbury in South Georgia, U.S.A., also in 1868; by Cobbold in London, in 1872; and by Corré in Gaudeloupe, in 1872. Then, late in 1872, Lewis, in Calcutta, found organisms of the same form, for the first time, in the peripheral blood (Manson-Bahr, 1959). Lewis named the embryo parasite *Filaria sanguinis hominis*.

It was at this stage that Bancroft was introduced to the parasite by Dr. Thomas Rowlands, who, following the work of Lewis, was the first to find it in Australia. Rowlands, who practised at Ipswich (the name had been changed from Limestone more than 30 years earlier) found microfilariæ in the urine of a chylurous patient. Bancroft then examined his own patients and found the larvæ in the blood. He sent specimens of these to his old teacher, William Roberts, a distinguished urologist of Manchester, who in turn referred them to T. S. Cobbold, the eminent London parasitologist. Cobbold, in 1876, published an account of Bancroft's specimens and drew his attention to the fact that these were immature forms, of which the parent worm was still unknown.

Bancroft at once sought the adult worm. He was at a loss where to begin, but remembering that abscesses formed about the Guinea worm, *F. medinensis*, of which he had read, decided he would commence his search in the abscesses which at times also occurred in chylurous patients. Accordingly, he searched the abscess contents of his filaria-infested patients. For three months he was without success. Then, on December 21, 1876, he opened an abscess on the arm of a Brisbane butcher boy, who had microfilariæ in his blood. In the pus was a hair-like structure, about four inches long, which his microscope showed to be a worm. It was dead, so he sought for others. After a further three months he found four more specimens in another patient, this time in a hydrocele. Here is his report of the discovery:

> A carpenter, aet. 50, called to consult me about a hydrocele of the cord. I tapped it with a trochar of a peculiar form I use for this purpose . . . About 4 ozs. of fluid escaped . . . On withdrawing the trochar I observed a red hair-like mass entangled in the aperture of the wound. This I carefully extracted and placed in the fluid of the hydrocele. The hair-like mass now commenced the most active motions. I examined the patient's blood, and found microscopic filariæ. The coiling and uncoiling of the worms in the hydrocele fluid were very rapid, and the mass . . . spread over an extent of three or four inches in each direction . . . My friend, Dr. Mullen . . . came to inspect them. Lifting the worms out of the hydrocele fluid and placing them in water

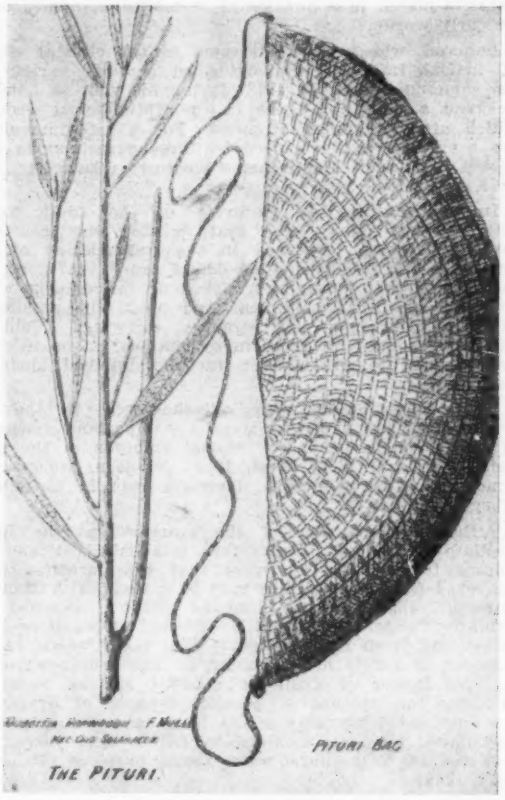

FIGURE VII.

Illustration from a paper by Joseph Bancroft on "Pituri and *Duboisia*" (1877), showing a specimen of *Duboisia hopwoodii* and aboriginal pituri bag.

> they stretched themselves out and became quiet. Now, I found there were four worms entangled. I replaced them in the hydrocele fluid, and after a short time they recovered their activity.
>
> I kept them about thirty hours, during which time their movements continued unimpaired; then placing them in water, I spent over an hour in uncoiling them from each other.

Bancroft sent an account of his discovery to Cobbold, with a lithographed drawing of the worm. In his letter of April 20, 1877, he wrote:

> I have laboured very hard to find the parental form of the parasite, and . . . have now obtained five specimens of the worm, which are waiting to be forwarded by a trustworthy messenger. I . . . believe it to be the solution of chyluria, some form of hæmaturia, one form of spontaneous lymphatic abscess, a peculiar soft varix of the groin, a hydrocele containing fibrinous fluid, another containing chylous fluid, together with some forms of varicocele and orchitis. These I have verified.

Without waiting for the arrival of the specimens, Cobbold at once published an account in *The Lancet*

(July 14, 1877) and later named the species *Filaria bancrofti*, in honour of "a highly meritorious observer and able surgeon" (Cobbold, 1877*a*, *b*).

This name for the species superseded that of *F. sanguinis hominis*, which had been suggested for the immature worm by T. R. Lewis, whose name is so prominently associated with the history of this parasite. With notable coincidence, he confirmed Bancroft's discovery some seven months later (Lewis, 1877). The genus *Filaria* was eventually divided and the human parasite placed in a new genus, *Wuchereria*, named after an early worker.

Bancroft was keenly interested in the clinical effects of filarial infection and described a wide variety in his communications. In 1878, during his visit to London, he read a paper on these to the Pathological Society, which attracted much attention. For a soft tumour of the groin and axilla, caused by these parasites, he suggested the name "helminthoma elastica" (Bancroft, 1878, 1879, 1885, 1889).

In addition to his discovery of the adult worm, Bancroft was one of the first to have the idea that mosquitoes were concerned in the transmission of the parasite. He informed Cobbold in April, 1877, of his expectation that mosquitoes sucked up microfilariæ when they fed on infected humans and noted the possibility of their conveying the parasites to water (Cobbold, 1878). He sought for these in mosquitoes fed on infected persons and found them in recently imbibed blood in *Culex vigilax*.

These observations were overshadowed, in the following year, by Patrick Manson's important discovery of the development of the filarial embryos in the mosquito (Manson, 1879; Ross, 1923). Manson, working at Amoy in China, played a dominant role in the filaria story at this time.

Although the status of the mosquito as the intermediate host of filaria was thus established, it was not known for another 20 years that the parasites were conveyed from mosquito to man by biting. With Manson, Bancroft thought that humans became infected by drinking water into which infected mosquitoes had fallen and freed their parasites. For many years, in his capacity as public health officer, he had issued warnings on the danger of drinking unboiled surface water in Brisbane, on account of possible typhoid or dysentery. He now added filariasis to the risks, and thought, when the filarial incidence in Brisbane fell in later years, that this was due to the purer water supply provided (Bancroft, 1878, 1889).

Little more was added to the filaria history by the time of Joseph Bancroft's death. His work was continued by his son, Dr. Thomas Lane Bancroft, who had returned to Brisbane after his graduation at Edinburgh in 1883. As a school-boy, he had helped his father in the search for the adult *F. bancrofti*, and had discovered parasites in marsupials and birds. To Thomas Bancroft was due the next great step forward in the knowledge of this parasite. This followed his suggestion that the larval filariæ, after development in the mosquito, were injected by biting (T. L. Bancroft, 1899). Definite evidence of this was later obtained by Low (1900) from filariated mosquitoes which had been sent to Manson by Bancroft, and almost simultaneously by James (1900).

Thomas Bancroft also showed that microfilariæ needed some 16 or 17 days' development in the mosquito before they could be effectively transmitted to humans; he introduced feeding methods that enabled infected mosquitoes to be kept alive for this time and was the first to show (1901) that the filarial larvæ escaped from the tip of the labium of the mosquito during the act of biting. He also finally overthrew the theory of transmission by drinking-water (1899), by showing that larvæ from a mosquito would not live in it (T. L. Bancroft, 1899).

Like his father, Thomas Bancroft was a devoted, talented and many-sided doctor-naturalist. He is distinguished by a notable body of scientific work on the Australian flora and fauna. Apart from his filarial investigations, we may mention his numerous other parasitological studies, including his discovery of trypanosomes in many Australian species; his study of the Queensland lung-fish; his demonstration of the method by which hookworm larvæ enter the body; his work on the transmission of dengue fever by *Aëdes ægypti*; and his development of new varieties of plants and fruits by hybridization.

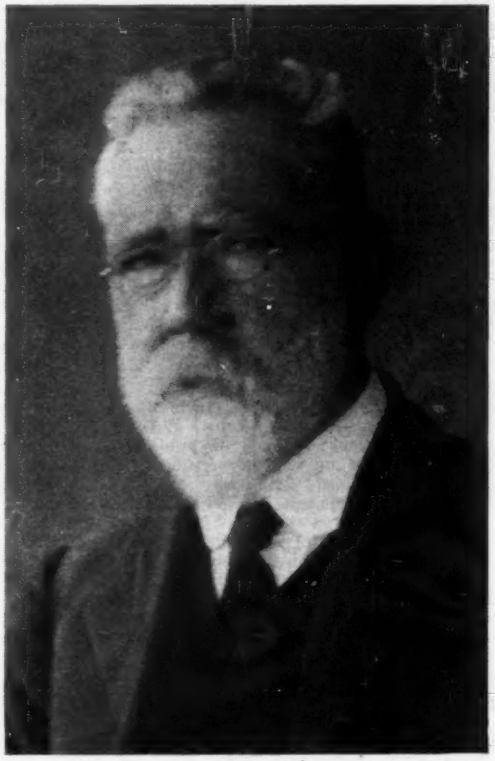

FIGURE VIII.
Thomas Lane Bancroft, M.D. (1860-1933.)

Thomas Bancroft gained international fame, but no one ever sought fame or publicity less. Those of us who have had the honour of knowing him will remember his unexampled modesty, his kindness and helpfulness, and his unique knowledge of Australian natural hisory.

The work of the Bancrofts has been carried on with the same quiet devotion by the daughter of Dr. Thomas Bancroft—our friend and colleague, Dr. Mabel Josephine Mackerras. The investigational work of Dr. Mackerras covers a wide range, particularly in entomology and parasitology.

Work as Pioneer Australian Leprologist.

Bancroft's work on leprosy serves to illuminate the high reputation he enjoyed as a doctor, for it discloses the spirit of inquiry, the industry and the public responsibility for which he was distinguished.

Leprosy was first introduced into Australia by Chinese immigrants, who were attracted in large numbers by the gold discoveries of the 1850's. It was also brought by Pacific islanders, whose importation as plantation labourers to the Queensland coastal districts was regularly established in the 1860's. The consequent infections

of local Europeans, although these were few in number, and later of aborigines, raised the important question of its possible widespread implantation. This was emphasized by the rapid dissemination of the disease in the Hawaiian Islands about 1865, after its introduction by Chinese. The subject caused much professional concern and public attention up to the end of the century.

Bancroft's interest in leprosy was aroused soon after his arrival in Queensland and its problems occupied him for the next 30 years. He displayed his characteristically many-sided approach in his study of this disease, for in addition to being its pioneer recorder in Queensland, he was involved in its clinical, preventive, investigational and administrative aspects.

When Bancroft took charge of the Brisbane Hospital as resident surgeon in 1868, he had had no previous experience of leprosy. The disease had not been recognized in Queensland before that time, although it was later found that the hospital records contained notes of undoubted cases from 1855 onwards. His introduction to the disease awaited him on commencing duty at the hospital, in a German ship's cook who was employed about the premises and who was suffering from an undiagnosed ailment. This man displayed facial signs of leprosy and by burning himself had discovered anæsthetic areas on his limbs. Bancroft first considered the possibility of syphilis and gave him a course of mercury treatment, without any beneficial effect. The diagnosis dawned on him after study of his textbooks, although at first his colleagues were unwilling to agree with him. He later decided that certain lesions of the extremities in Pacific Islanders, commonly called "islander's toe disease" by local doctors, were due to leprosy of another kind — neural leprosy. He attributed the inability of British-trained students to recognize well-marked cases of leprosy readily to the absence of adequate illustrations in their textbooks (Bancroft, 1892).

As the years passed, Bancroft became the leading Queensland authority on leprosy. He acted as consultant to his colleagues, and Dr. E. Sandford Jackson (1923) wrote of the comfort he was to them in difficult cases. Dr. Jackson also noted the keen watch kept on the disease by Bancroft, as a member of the Queensland Board of Health.

The subject of the contagiousness of leprosy, argued to our own time, was especially pertinent in Bancroft's day. From what he called the lesson of its spread in Hawaii, and his own experience, he feared its rapid extension in Australia. On this account, he was a keen advocate of the early detection and segregation of patients.

Despite the views of the non-contagionists, detected sufferers were deported or isolated long before the first Queensland leprosarium was established in 1889 at Dayman Island. A description of early isolation is given by Thompson (1897) in regard to the first patient reported from Rockhampton. This was a Chinese labourer, who was sent from Cooktown to the Rockhampton gaol in 1877. Here a hut, surrounded by a wooden fence, was built for him in the centre of the gaol paddock. He was guarded by a warder, who prevented anyone approaching. His food was brought to the fence and left there, and was taken by him after the attendant retired. Some 10 years after the death of this patient, Thompson questioned a local resident, recently diagnosed as infected with leprosy, as to whether he had ever been in close contact with him. "No fear!" he said, "there was always a man with a rifle guarding him."

From his observation of the occurrence of leprosy and filariasis together in certain patients, Bancroft considered the possibility of a relationship between the two diseases and appears to have given this much thought. In 1877 he extended his local investigations on the subject during a visit to Singapore, where, at the Tang Tok Sing Hospital, he examined the blood of large numbers of lepers for microfilariæ, but found none. He wrote later (1892) that there was little evidence of a relationship between the diseases, although he thought they had both been introduced from China and were possibly transmitted by mosquitoes.

At a meeting of the Pathological Society of London in 1878, Bancroft noted that the old physicians had associated the two diseases in their use of the term "elephantiasis", for both leprosy and "elephant-leg". He suggested that the term "elephantiasis" should be used only for the "big-leg disease" and that "elephantiasis Græcorum", a term still used for leprosy, should be

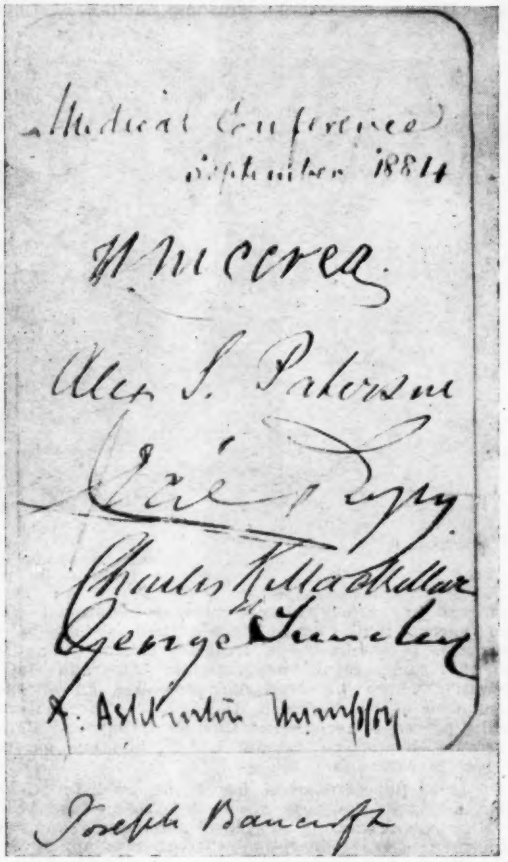

FIGURE IX.

Signatures of delegates to the Australasian Sanitary Congress of Sydney, 1884. (From a page of Joseph Bancroft's note-book, in the possession of Dr. M. J. Mackerras. Bancroft's signature, from another source, has been added.)

abandoned. For this he was taken to task by the president, Sir Erasmus Wilson, but was able to remark, 14 years later, that the suggested change had practically come to pass (Bancroft, 1892).

In view of the grouping of the two diseases in his mind, it was inevitable that Bancroft should consider the transmission of leprosy by mosquitoes or other blood-sucking insects. He thought that this was possible and that the transference of organisms would occur, if such was the case, by the drinking of water into which infected insects had fallen, as he held to be so in filariasis. He also discussed the possibility of transmission by food and especially by green vegetables handled by Chinese. He reached no decision on this point, but mentioned that such vegetables were never eaten uncooked, or radishes unpeeled, at his own table.

In 1892 Bancroft published a review of leprosy in Queensland, which contained the only connected account of the disease, as it occurred in a part of Australia, to that time. His series of cases was the first to be reported in Queensland. Among them is the first recorded instance of infection in an aboriginal. This case foreshadowed the real leprosy problem of later days — the implantation of the disease in the native people.

He was seriously concerned at the continued introduction of leprosy from Asia and introduced the subject at the Australasian Sanitary Conference of Sydney in 1884. He urged that the growing number of Chinese sufferers in various States called for national action and moved that Chinese immigration should be discouraged. It would be "a frightful calamity", he said "if the same result happened in Australia [as in Hawaii], where we are going to have an enormous population of Europeans in the future". The conference finally agreed to recommend that all Indian and Chinese migrants should be examined for infection on their arrival in Australia.

FIGURE X.
Joseph Bancroft's farm-house at Deception Bay. (From a photograph taken in 1889, in the possession of Dr. M. J. Mackerras.)

In 1892, Bancroft again urged the need for Government action in the early discovery of cases, and pressed for the examination of all Asians and Polynesians before admission to the country and thereafter at annual intervals. He held that official measures should include the bacteriological examination of suspected lesions, for it was now possible to distinguish the lepra bacillus, discovered by Hansen in 1874, by Ehrlich's staining methods. These had been recently introduced to Brisbane by Dr. Eugen Hirschfeld (1892), who commenced practice there in 1890, and was then honorary bacteriologist to the Brisbane Hospital. Bacteriological examination had also been used in the diagnosis of a case at the Bundaberg Hospital by Dr. Rogier, Director of the Pasteur Institute of Sydney, during a visit in 1891.

Dr. R. Scot Skirving, from his memories of Bancroft, recalled a meeting with him in Macquarie Street, Sydney, in the 1880's. Bancroft was accompanied by Dr. John Mildred Creed, the jovial and forceful editor of *The Australasian Medical Gazette*. Skirving recalled, with obvious vividness after 50 years, the depth of Bancroft's pondering on the thorny problems of leprosy, and the intensity with which he proclaimed the need for preventive action.

Bancroft and Public Health.

Joseph Bancroft's association with the development of Public Health in Queensland is an important aspect of his work, and one which contributed largely to his reputation for community service. The period from 1880 to 1900, during which he served in the Central Board of Health, was an exciting period of development of Australian public health, during which he exerted a guiding influence on official health measures in the colony.

Preventive medicine appealed to Bancroft as a prime necessity. "Since we can often prevent what we cannot cure", he wrote, "we should not dumbly follow wrong paths . . . like a lot of wandering cattle." That he gained satisfaction from his public health work, or at least a keen realization of its value, is indicated by his statement:

> Those who strive to protect the health and lives of the public from the dangers of contagious diseases, of illnesses due to impure and filthy water, insanitary milk and food, corruption of excreta . . . and disregard of laws of health and good living, bear the privilege of more useful service than . . . usually falls to others.

For some years Bancroft was Health Officer for Brisbane, and was a member of the Central Board of Health, serving as president from 1884 until his death in 1894. He was also a member of the Medical Board of Queensland from 1876 till 1894 (president 1882-1894), and was the first president of the Section of Hygiene and Public Health of the Association for the Advancement of Science. His presidential address for the latter was on "Various Hygienic Aspects of Australian Life" (Bancroft, 1888c).

The Central Board of Health of Queensland was established under an Executive Order in Council and first reported in 1865, the year after Bancroft's arrival in Brisbane. It drafted a Bill for improving the sanitary condition of towns, based on the *Health Act* of Victoria, but it appears that no Act came into force till 1872. This created a Central Board of Health and provided for local boards. An important advance occurred in 1884, with a *Public Health Act* based on the English statute of 1875. This empowered the Central Board to enforce the obligations of the local boards. The Board functioned until a Commissioner of Public Health was appointed under the *Health Act* of 1900. Only three printed reports of the Board appeared up to this time — in 1865, 1877 and 1880.

It is possible only to mention Bancroft's work with the Board, which, from the outset, had accepted the

provision of proper sanitation at its main task. The Local Board of Health of Brisbane, at its foundation, set about "cleansing the city, which in truth, had become little better than an Augean stable". By 1877 an earth-closet system was under trial, although the removal of old cess-pits resulting from this, almost wrecked the improvement scheme, for the odour of the night-carts engaged in the work became "almost intolerable", and was ascribed by citizens to the new system. The Queensland rivers were prevented from being turned into sewers, and from so "contaminating towns with pestilential vapours which . . . diffuse disease and death all round". Bancroft, probably as Medical Officer of Health for Brisbane, was thanked by the Board for his "very ingenious model of a form of earth-closet he considers superior to any other at present in use". His interest in sanitation never waned, and apart from his official duties, he engaged briskly, from time to time, in public argument on this. He was also concerned with such subjects as the provision of pure water supplies, the cleanliness of milk and other foods, the design of housing and dress suitable to the climate, the prevention of infectious diseases, especially typhoid and dysentery, and the abatement of the high infant mortality of his time.

He reacted irascibly to criticism of health measures and at times engaged in angry newspaper controversy. One such incident followed his complaint that milk was being adulterated with roadside water, as proved by the "naked eye evidence of small fish, tadpoles and mosquito larvæ". He said that such water could only be made safe by boiling; and inspection should be instituted to enforce cleanliness and honesty. A rather humorous editorial followed in *The Courier* in which it was jocularly suggested that Bancroft was begging milk vendors to use only clean water for adulterating milk. He responded violently, attacking "merry Andrews" and "funny men" who ridiculed the establishment of health rules in a new country, and calling for "a little prudent weeding in this tropical garden of intemperate journalism". To this the editor replied that the worthy doctor "couldn't take a joke" (Bancroft, 1879c).

The Australasian Sanitary Conference of Sydney.

As president of the Board of Health, Bancroft was selected as the representative of the State to the historically important Australasian Sanitary Conference, which was held in Sydney in 1884, and attended by representatives of all States.[1] This was not only the first interstate health conference to be held in Australia, but also, as far as can be found, the first interstate medical conference of any kind. It initiated interstate consultation in important health matters and formally introduced the idea of federation in health administration in this country.

The conference met at the invitation of the Government of New South Wales, as the result of a recommendation made by its Principal Medical Adviser, Dr. (later Sir) Charles Kinnaird Mackellar, that a federal quarantine system should be established. The need for interstate cooperation was emphasized by the presence of smallpox in Australia at the time. However, although the epidemic was an incentive to action, the conference was essentially an early and important event in the wave of public health reform which characterized the years from 1881 to 1897. It may also be regarded as a medical participation in the general movement towards political federation, which commenced about 1880 and increased steadily to the achievement of its aim in the foundation of the Commonwealth in 1901.

Although the conference met specifically to consider the subject of quarantine, its work was extended to cover the whole field of public health. Its ideals were expressed in the statement of objectives: "To ensure to Australasia in the future that full measure of prosperity which experience shows is ensured to nations only when preservation of the public health is made the first care of Governments." Its report was designed as a lesson to the Governments on the aims and promises of public health.

The principle of federation in health matters was introduced by a resolution that all States should accept a uniform quarantine policy, by the adoption of a *Federal Quarantine Act*. A federal quarantine service

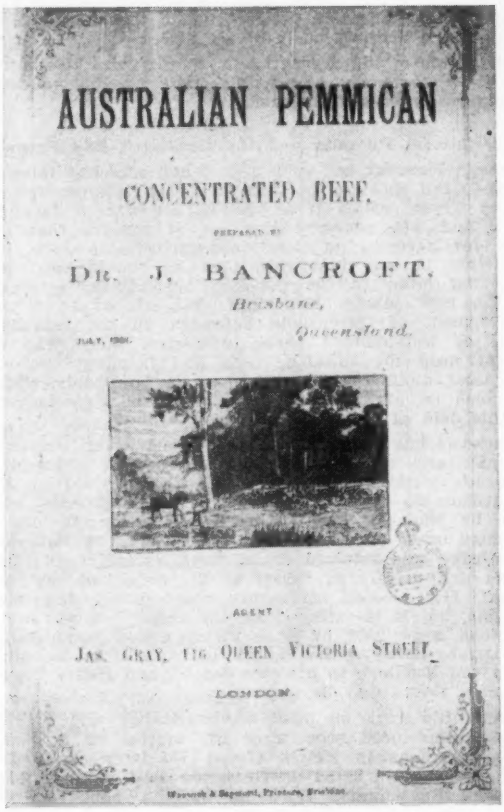

FIGURE XI.
Cover title of a pamphlet advertising Joseph Bancroft's preserved meat, 1891. (Mitchell Library, Sydney.)

was also recommended, with the establishment of quarantine stations near Albany and Cooktown, for dealing with vessels approaching from the west and north. These proposals were not adopted by the States. They were reaffirmed in 1896 at a second Australasian conference of health authorities held in Melbourne, but no political action followed and a federal service awaited the inauguration of the Commonwealth.

Other important recommendations of the conference included the establishment of an Australian health information bureau for the collection and distribution of overseas reports, the compulsory notification of infectious diseases in all States and compulsory vaccination. The last-mentioned subject particularly concerned New South Wales and Queensland, for it had already been enacted in all other States. In the two States mentioned, despite strong representations by the medical profession, it was

[1] The conference was attended by delegates from all States and the Crown Colony of Western Australia. Its membership consisted of: Charles K. Mackellar (chairman) and J. Ashburton Thompson (New South Wales), Joseph Bancroft (Queensland), A. S. Paterson (South Australia), G. W. Turnley (Tasmania), W. McCrea (Victoria), Cecil Rogers (Western Australia).

rejected by legislators on account of opposition by those to whom Bancroft referred as "crochetty anti-vaccinationists".

Bancroft introduced the subject of the prevention of hydrophobia, with which he had previously concerned himself. The disease had been reported in Tasmania in 1867, the only occasion when a human case has been recorded in Australia. It had also been reported in dogs in New South Wales in the previous year. Bancroft succeeded in obtaining a recommendation that the importation of dogs should be prohibited, except after a period of quarantine of not less than six months. He suggested that, as we now had all the good races of dogs in Australia, it would do no harm to prevent entirely any further entries. Certain restrictions on the admission of dogs were ultimately made by all States.

Discussion of the prevention of leprosy was also introduced by Bancroft, whose important recommendations have already been mentioned.

Agricultural Pursuits and the Deception Bay Farm.

Joseph Bancroft had such a deep and ceaseless interest in the land and its pursuits that his botanist friend, Henry Tryon, called it a passion. He was of farming stock and was country bred and it appears that his love for farming at least approached his love for medicine. It was inevitable that he should turn his inquiring mind to the pressing agricultural problems of the new colony. He urged that, since the future development of Queensland depended on the establishment of well-founded rural industries, there was an urgent need for suitable crops and farming methods. His local distinction, in his own day, probably rested as much on his work as an adviser and experimenter in this field as in that of medicine.

Bancroft has been variously described as an economic botanist and a scientific farmer, and one acquainted with his work (Browne, 1927), doubtless recalling his impatience to apply knowledge to practical ends, said that he was not sure "whether Dr. Bancroft was a botanist or a plant industry promoter". His botanical knowledge was referred to as "both extensive and profound and greatly in excess of his published contributions". His medical colleagues were deeply impressed by this, but it is rather from the respect in which his opinions were held by such distinguished botanists as Frederick Bailey, "the doyen of Australian botanists from von Mueller's to his own death", and Henry Tryon, that his status may be estimated.

Bancroft's work on plant acclimatization and hybridization commenced soon after his arrival in Brisbane, at his gardens in Kelvin Grove. He later obtained a property of 1600 acres at Deception Bay, running back towards Burpengary. Here he built a house on the shore, which he visited at week-ends, and developed a farm where he continued his plant and animal studies. His meat-preserving works and oyster beds were situated in close proximity. The latter were described as "an excellent object lesson on the subject", and he studied both the biology and the practical culture of the oyster. At the time of his death he was experimenting with Saville Kent on the artificial culture of pearls, in which some success was attained.

Bancroft was interested in the development of the district and gave two acres of land for a school at Burpengary. His old friend, Dr. William Hobbs, also had land in the vicinity at Humpy Bong, and Jackson (1923) mentions that the latter had found a mineral spring near the mangrove-lined shore of Deception Bay, which he considered of value in the treatment of anæmia and certain other complaints.

The house at Deception Bay, like Bancroft's two Brisbane homes, has now disappeared, although Dr. Robert Miller, on a recent visit to the place, found traces of his activities. The two wells he dug remain, and iron boiling pans, probably associated with the meat works, lie rusting; on the shore are the remnants of a fish trap and a rock-pool bath; and the site of his rice field is still identifiable on swampy ground near Burpengary Creek.

For many years Bancroft engaged in the selection and acclimatization of cereals suitable for local production, at that time one of the most urgent problems of the colony. The wheats in cultivation on the coastal area and the upper Darling Downs were invariably destroyed by rusts, for which reason, as late as 1888, there was no flour mill in Brisbane and practically all flour was imported. "The failure to produce wheat", he wrote, "gives little encouragement to carry on agriculture in the European model. . . . It therefore behoves all

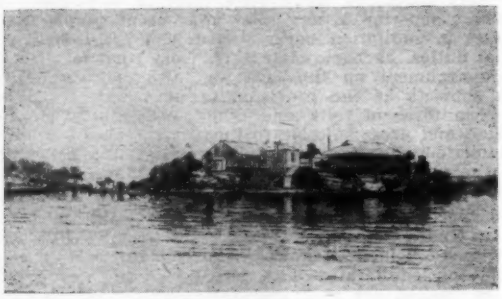

FIGURE XII.

View of the experimental station established on Rodd Island, Sydney Harbour, in 1888. (From A. Loir, *"La Microbiologie en Australie"*, Paris, 1892.)

patriotic men to try how far this can be remedied and the path to successful farming made easy for their descendants" (Bancroft, 1888*a*).

In 1875, the Government set up a board to investigate the diseases of stock and plants, on which Bancroft served for many years (Report, 1876). The subject of the crop-destroying rust was submitted to the Board, which, on Bancroft's advice, sought wheat varieties from all over the world and especially from places of the same latitude as Queensland. He also obtained a large collection from friends in India. He grew over a hundred varieties at Kelvin Grove, from which, after much patient work, he finally selected four rust-proof wheats as most suitable for local use. These were sent for milling tests and were widely distributed for cultivation.

The work on rust-proof wheat was continued at Deception Bay, where experiments were carried out in association with William Farrar, the great pioneer of scientific wheat-growing in Australia. Like Bancroft, Farrar had migrated on account of ill-health, abandoning his medical studies to arrive here in 1870.

Bancroft was regarded as the local authority on practical wheat-growing and in 1888 was chosen to write the chapter on this subject for an officially published guide book for settlers (Bancroft, 1888*a*).

It is now difficult to make a proper estimate of Bancroft's work on wheat and other cereals. His results have been absorbed into the body of local knowledge. But there is no doubt of the value of his contribution to the grain-starved colony, or of the high appreciation of this by his fellow colonists. At his death, this phase of his labours was summed up in a tribute by the Royal Society of Queensland (1894), in the following sentence: "He demonstrated the important fact that wheat, rye and rice could be successfully grown in the vicinity of Brisbane."

Bancroft's experiments with rye arose from the fact that, as it was practically free from rust, he at first thought that it was perhaps the only grain that would grow about Brisbane. He grew rye in his gardens and for about a year had rye porridge, ground in a coffee mill, for his breakfast. He ate it, as he said, "somewhat from patriotic motives". The next year he produced a

larger quantity, which he sent away to be ground into meal. The rest of his experiment is described in his words: "This was cooked but when brought to the table was found to have such a peppery taste that the cook was accused of letting a caster fall into the porridge. But no, all the meal had the same flavour and it was discovered that our rye had been ground in the pepper mill. This was my last experiment on the economics of rye." (Bancroft, 1884*b*.)

thousands of plants throughout the State. Mango, papaw, avocado, pepper, cinnamon, nutmeg, cloves, tea, coffee, cocoa, ipecacuanha, indigo, cotton and tobacco appear among the hundreds of species on its distribution lists.

Bancroft was an authority on plant diseases generally and especially those of the banana and sugar-cane. His advice was freely available and on several occasions he acted as a consultant to the Government. In 1876 he furnished useful official reports on a rust disease of

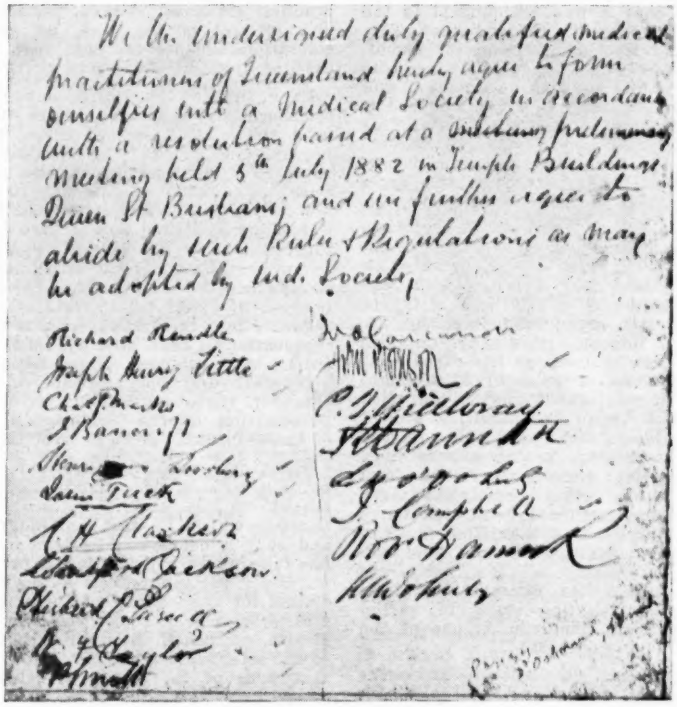

FIGURE XIII.

Form of agreement establishing the Medical Society of Queensland, 1882. (From the minute book of the Society, in the possession of the Queensland Branch, British Medical Association.)

He was also interested in the possibilities of rice growing and several times exhibited specimens grown in swamps near Brisbane. Later, he attempted cultivation on a large scale in a flooded area at Deception Bay, but the project fell through because of difficulty in obtaining labour. He also experimented with cotton-growing, with which other Brisbane doctors had been concerned earlier. Dr. William Hobbs was one of its local pioneers, and Dr. Ballow, an early house surgeon of the old Brisbane Hospital, had cultivated cotton in the hospital grounds in George Street.

Bancroft's ceaseless interest in the introduction and adaptation of varieties of useful plants suitable to the Queensland climate is indicated in numerous references of his time, although no detailed record exists of this work. He produced hybridized grapes and strawberries that were extensively cultivated and introduced a wide range of plants. In these activities he was one of an enthusiastic band of naturalists who were united in the Acclimatization Society of Queensland, of which he was a councillor. This notable organization, which was founded in 1868 for the introduction and acclimatization of useful animals, birds and plants, played an important part in local development and existed until 1959. It established experimental gardens at Bowen Park and at Woody Island, Wide Bay, and distributed seeds and sugar-cane which was then destroying local crops, and on a disease of bananas, and in 1886 he was commissioned to investigate a ruinous disease of maize crops, caused by a caterpillar, in the Caboolture district.

For botany that could not be put to immediate use, Bancroft had little enthusiasm, although for a time he was interested in respiration in the roots of shore plants, including the mangrove (Bancroft, 1882*a*, 1888*b*). In this, as in all he did, he was eminently utilitarian; he viewed the plant world with the eyes of a scientist who was no less a farmer.

Venture in Meat Preserving.

Soon after he came to Queensland, Joseph Bancroft, impressed by the abundance of cheap meat, experimented with methods of preserving it for export. Canned meat had come into popular use in Britain about this time, the trade being pioneered from Australia, as was the frozen meat trade in later years.

In 1869, some five years after his arrival in Brisbane, he registered two patents, in which he proposed "to desiccate meats, vegetables, etc., for preservation by means of an apparatus" which he had invented. This consisted essentially of an enamelled or iron tray placed over a steam box, with a chamber and fan contrived to

drive heated air over the surface of the tray. The meat, placed on the tray, was heated by the steam box beneath and acted on by the hot air draught, after which it was canned. The process was described as being performed within an antiseptic atmosphere (Archer, 1870).

It has not been found when Bancroft commenced meat preserving on a commercial scale, although by 1869 the product of his process, which was later advertised under the name of Australian Pemmican Concentrated Beef, was tried by his colleague, Dr. William Hobbs, as a substitute for fresh meat, upon his patients at the Brisbane Hospital. Hobbs reported that it was "economical to the institution, and also satisfactory to the inmates". This was not the first clinical trial performed by Dr. Hobbs. In Brisbane some years before, he had studied the effects of dugong oil on sufferers from consumption and other chronic diseases, and as a result had introduced it as a substitute for cod-liver oil in such ailments. This helped to establish the dugong fishing industry of Moreton Bay, and also caused him to invent the term "elaiopathy", to indicate "the systematic use of oil, as a curative agent" (Hobbs, 1857).

Bancroft's product was also tested, with complete satisfaction, by the Government geologist during eight months of bush life; by the captains of various ships on long voyages, including the *Omar Pasha*, which was burned at sea and consequently provided a stringent trial by her passengers and crew; and later by Sir William Macgregor, the intrepid, medically qualified administrator of British New Guinea, on his expeditions into the unknown interior of Papua. In a brochure advertising the product, it was stated that it contained "the complete concentration of all the nutritive properties and flavours of fresh meat, and [was] able to resist all the tendencies of decay". High praise was received from many sources, including a eulogistic letter from the Food Committee of the Royal Society of Arts, London, affirming that Bancroft's dried meat was found on analysis "to contain more actual nourishment than any other preserved meat submitted to us". The secretary of the Society, Mr. James A. Youl, who was probably the Mr. Youl with whom Bancroft had been associated in his fish-acclimatization work in earlier years, also wrote that "I look upon you as one of the benefactors of mankind" (Bancroft, 1891).

Manufacture was undertaken by Bancroft at works erected on his property at Deception Bay. Although dried beef formed the main product, other foods, including vegetables and Moreton Bay mullet, were also tried. At first the venture was not remunerative, but shortly after Joseph Bancroft's death, the British War Office placed orders for the Army, for which dried beef formed part of emergency rations.

In 1895, Dr. Thomas Bancroft went to live at Deception Bay and assumed the supervision of the works, in conjunction with his medical practice and scientific pursuits. However, after some nine years the price of cattle became prohibitive and the works were closed.

The Rabbit Plague.

During 1888 and 1889, Joseph Bancroft was associated with a national attempt to eradicate rabbits, which had become so widely established that it appeared Australia faced ruin as a pastoral and agricultural country. By this time the animals, spreading from Barwon Park, near Geelong, where they had been liberated in 1859, occupied large areas of Victoria and New South Wales, had invaded South Australia and were appearing about the southern border of Queensland. Measures taken by the governments to deal with the problem included a scheme for the payment of bounties for scalps, for which £917,000 was spent in New South Wales between 1883 and 1887, and the commencement of the vast system of rabbit-proof fences, which later extended for thousands of miles, in a disappointing effort to check the advance of the pest.

In 1887, the Government of New South Wales offered a prize of £25,000 to any person producing an effective method for the extermination of rabbits. A Royal Commission,[1] with representatives of various States, was appointed on April 16, 1888, to report on the suitability of the methods recommended, with special reference to their possible danger to the health of humans and domestic animals.

Bancroft was appointed delegate for Queensland, his naturalist friend, Henry Tryon, of the Queensland Museum, being added later as a second member. At first he hesitated to join the Commission, probably on account of ill-health and the commitments of his practice. However, swayed, no doubt, by the importance and interest of the task, he put aside personal considerations and for the next year, at great inconvenience, assisted in the heavy work of the Commission.

Over 1500 competitors submitted rabbit-destruction schemes, of which the greater number were concerned with the use of poison, gases, traps or fencing. The propagation of infectious disease, which especially appealed to the Commission, was suggested in 115 entries. Such ideas, born of current interest in the flourishing new science of bacteriology, were in the air at this time. For instance, it had been reported two years earlier that tuberculosis was to be tried against rabbits at Torrens Island (*Aust. med. Gaz.*, 1885) and still earlier, that the inoculation of syphilis had been performed for this purpose in western Victoria. The latter method was regarded by a medical reporter as worthy "of the strongest reprobation" (*Aust. med. J.*, 1869). The majority of such entries were valueless, diseases such as small-pox, syphilis, glanders, hydrophobia and tuberculosis being recommended. However, three applications were found worthy of close examination by the Commission, and the investigation of these formed its main task for the ensuing year.

The most promising plan, and one that made the competition notable, was that of Louis Pasteur, then at the height of his career. He suggested the use of fowl cholera, which he had proved to be lethal to rabbits, and sent a delegation to demonstrate his method. This has recently been noted as the first step towards bacterial warfare. The unexcelled authority of Pasteur and his claims for the efficacy of this measure gave high hopes for its success, although the New South Wales Board of Health, to which the entries had been submitted prior to the establishment of the Commission, had recommended that none of the suggested schemes should be adopted (Report, 1888).

The other select contestants were Australians. Professor Archibald Watson, the vivid and energetic anatomist of the Adelaide Medical School, recommended the importation of *Sarcoptes cuniculi*, the cause of "rabbit scab", with which he had experimented. Earlier in the year, he had persuaded a group of Melbourne pastoralists that this was effective and innocuous to other animals, and the Government of Victoria was requested to import the parasite for trial. However, it is noted that the promoters asked that they should not be liable for any damage to stock that might be caused (*Aust. med. Gaz.*, 1887).

The third entry selected was that of Dr. H. A. Ellis and Dr. H. P. Butcher, of New South Wales, who suggested the use of an affection of rabbits which, in the previous year (1887), had greatly reduced their numbers on the Tintinallogy station, situated on the Darling River between Wilcannia and Menindie. This condition, the cause of which was never ascertained, became known as "Tintinallogy disease".

The Commission took evidence in Sydney, Adelaide and Melbourne, and a party of four members, including Bancroft, made a long journey to Tintinallogy to investigate the unknown disease. It was clear that destruction of rabbits had occurred there, but a report

[1] The following Commissioners were appointed: H. N. MacLaurin, M.D. (Chairman), W. Camac Wilkinson, M.D., and E. Quin (New South Wales); H. Brookes Allen, M.D., E. H. Lascelles, and A. N. Pearson (Victoria); E. C. Stirling, M.D., and A. S. Paterson, M.D. (South Australia); J. Bancroft, M.D., and H. Tryon (Queensland); T. A. Tabart (Tasmania); A. D. Bell (New Zealand).

by Bancroft stated that no particular cause for this could be indicated.

An Experiment Committee, of which Bancroft was a member, was formed by the Commission to conduct experiments and to watch, on its behalf, those performed by the contestants. This was under the chairmanship of W. Camac Wilkinson, M.D., of Sydney. Oscar Katz, Ph.D., bacteriologist of the Linnean Society, was appointed laboratory officer, to work under the Committee's direction. Rodd Island, a rocky islet of about one and a quarter acres in Long Cove, an arm of Sydney Harbour, was shown to exist in Australia, and that epidemics in fowls and other birds were possible from the introduced cultures. The method was, therefore, judged unsuitable.

Tintinallogy disease and rabbit scab were also unsatisfactory. The latter was regarded as a danger to domestic animals; the claims that the former had been transmitted by injection from sick to healthy rabbits could not be confirmed, and it was impossible to say whether a communicable disease had existed at Tintinallogy. The Royal Commission recommended to the New South Wales Government that the prize should not be awarded. Further

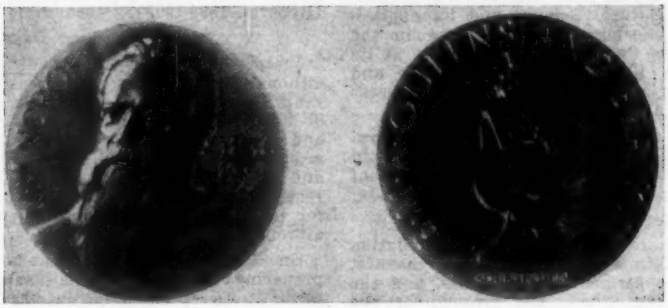

FIGURE XIV.
The Bancroft Medal, struck by the Queensland Branch of the British Medical Association, for presentation to Bancroft orators.

obtained for an experimental station. Here living and laboratory accommodation was built, including an animal enclosure covering about a quarter of an acre, protected by fly-wire and drained into disinfecting tanks. Bancroft offered facilities for preliminary experiments in the Brisbane Hospital laboratory, but these were not required.

At one stage, it was suggested by a member that, to save time, field trials should be undertaken before laboratory tests were completed. To this Bancroft replied that "if they did not apply remedies with their eyes open, there was no use going on with their eyes shut. It was far better to learn first what could be learned, and then proceed to action".

Pasteur's delegation was led by his nephew, Adrien Loir, a young doctor who for six years had been his secretary and assistant. He was accompanied by Dr. Germont and Dr. Hinds, the latter an English graduate, who were included mainly for their supposed bilingual competence, since Loir knew no English. Unfortunate misunderstanding and difficulties soon arose with the French team, which added greatly to the burden of the Commission. Some of this was due to poor *liaison*, for Loir (1938), writing some fifty years later, mentioned it was apparent that Germont was as little capable of speaking in English as Hinds was in French, and that he had also been misdirected by the French Government representative, who shared their linguistic deficiencies. It was necessary for him to consult with Pasteur at all points of departure from his instructions, and this, from slowness of communication, led to long delays in carrying out tests requested by the Commission, with consequent dissatisfaction.

The lethal effect of fowl cholera on rabbits had been confirmed by Pasteur, in an experiment in which cultures were added to the food of animals in an enclosed warren, completely destroying them. The Experiment Committee agreed that the organism had this effect and was innocuous to domestic animals, but it was necessary for them to be assured that, once started, the disease would spread freely, under natural conditions, from infected to healthy rabbits. Their Rodd Island experiments showed that this did not occur; practical results could be obtained only by continued feeding, in the manner already obtained with poisons. It was an additional disadvantage that fowl cholera was not yet inquiry into the epidemic and parasitic diseases of rabbits was also recommended, and it was noted that, although there was no evidence that known diseases would exterminate rabbits, it was probable that some would be found which would reduce their numbers to manageable proportions (Reports, 1890*a*, *b*).

This decision caused dissatisfaction in competitors and led to much public criticism of the Commission. The bitter Gallic recriminations of Loir appear to have outpaced all others, although he received from the Commission, in return, what was termed "a strong rejoinder", in which it was said that M. Pasteur's representatives "expect the award on such proofs as themselves may determine". It is pleasing to note that Pasteur himself took no part in this dissension. While still in Sydney, where he remained for five years, Loir published an account of his microbiological work in Australia, in which he accused the Commission of gross unfairness and partiality (Loir, 1892). Later, however, he obviously recognized that its decision was justified, and wrote with pleasure of his life in Australia (Loir, 1938).

The criticism of the time, particularly on the rejection of Pasteur's scheme, appears to have led to a lack of appreciation of the Rabbit Commission's labours. A recent writer has even called its investigation of fowl cholera "a fiasco", but its work was scientific and its decisions were wise.

For the rest of his days, Bancroft maintained that the successful control of rabbits would come from the investigation of their maladies. "All the brute force, wire netting, and drug poisonings included cannot destroy them", he wrote, "even if all the population of Australia were set to the task. The hope lies in a careful study of the natural history and pathological conditions of the rabbits—and the sooner this is perceived the better" (Keith, 1892).

The Philosophical Society and Royal Society of Queensland.

In 1866, Joseph Bancroft joined the Philosophical Society of Queensland, the pioneer scientific body of the State, and remained a leading member of the Society, and of its successor, the Royal Society of Queensland, until his later years. The Philosophical Society was founded in 1859 for "the discussion of scientific subjects, with special

reference to the natural history, soil, climate and agriculture of the colony of Queensland". Bancroft found in its gatherings of kindred spirits a ready forum for his crowded observations in many fields, and contributed frequent papers and exhibits. These were on such diverse subjects as the pharmacology of the *Duboisia* species and of *Alstonia*, poisoned South Seas arrows, pathogenic fungi of sugar-cane, the heart of the dugong, rubber from local fig-trees, marsupial generation, the manufacture of dried meat, and various insects and plants. He became a Councillor and later Curator of the Society, and was President in 1882-1883.

The Royal Society of Queensland was formed in 1883 "for the furtherance of Natural Science and its application", the Philosophical Society being absorbed in the process. Bancroft was Vice-President of the Society at its foundation, President in 1884, Councillor in 1885, and Treasurer from 1886 till 1888. His presidential address (1885*b*) stressed the local need for a university.

An important history of the Philosophical and Royal Societies was contributed by Dr. Elizabeth N. Marks in her recent presidential address to the Royal Society of Queensland.

The Brisbane Medical Societies.

Joseph Bancroft took a leading part in the foundation of the Medical Society of Queensland, which was the first medical association to be formed in this State, and the forerunner of the present Queensland Branch of the British Medical Association. In its early years, there was such marked difference of opinion among its independent and outspoken members in regard to its aims and objects, that the Society was twice disbanded before a third attempt finally resulted in a well-founded organization.

The Medical Society was first established in 1871, and consisted of 11 members, with Bancroft as secretary. After a lively existence of nine months, dissension occurred through an attempt "to open public discussion on the relations between doctors and chemists on prescribing and dispensing", and the Society broke up.

After a lapse of 11 years, it was reformed in 1882 with 19 members, but again succumbed after ten months' activity.

The Society was revived for the third time in 1886, with Joseph Bancroft as president. It was decided that the controversial questions of legislation and professional ethics, which had caused disagreement leading to the downfall of the earlier bodies, should be banned, and that the discussions of the Society should be confined to clinical and scientific subjects.

The new Society was a success from the outset, and its meetings became a feature of medical life in Brisbane. Its membership was also larger, for there were now 43 doctors in practice in Brisbane, and 65 within a radius of 50 miles. The attraction of the colony to medical men about this time is shown by the large numbers seeking positions; for instance, in 1890, there were 78 applicants for the post of resident surgeon to the Mount Morgan Hospital.

No further disagreement occurred, although meetings remained lively. It was mentioned that members still "gave criticisms without fear or favour" and that "possibly offence may sometimes be given to some when none was intended".

For some time, the Society met in a room in the School of Arts, which soon became too crowded for its growing numbers. It was therefore decided to move to larger quarters in the Divinity Hall in Ann Street. However, the trustees objected to members smoking, and since the Society refused to submit to what Bancroft called "vexatious restrictions", only one meeting was held there before it moved back again. Bancroft remained a leading member until 1890, when ill-health restricted his activities.

The Medical Society flourished until 1900; it was then incorporated in the newly-formed Queensland Branch of the British Medical Association (Bancroft, 1888*d*; Hardie, 1900; Reports of Society).

The restriction of the activities of the Medical Society to scientific subjects, and the growing need for a professional voice in ethical and public affairs, led to the foundation of a second association of medical men in Brisbane in 1890. This was named the Queensland Medico-Ethical Society, and was formed with the objects of "guarding the interests of the profession, fortifying it against the unscrupulous, and promoting fair and honourable practice". The Society dealt with such subjects as professional standards, lodge and hospital practice, unregistered practice and quackery, and professional disputes. It also became an important instrument for practical reform, especially in public health matters (Reports, 1890-1893).

Last Days.

Joseph Bancroft's work—medical, scientific and public—although slackening from increasing ill-health in his later years, continued to his end. He was now called "the old doctor", for two young Dr. Bancrofts—his son, Thomas, and his nephew, Peter—also practised in Brisbane. His reputation, early established, had grown with the years, and he was an honoured and revered figure. "All respected and admired him", wrote a medical colleague, for he was "a man whose influence all felt [and] whose all-round worth we all recognised".

On June 16, 1894, at his home in Brisbane, while preparing to leave for his usual week-end visit to his farm at Deception Bay, Joseph Bancroft died suddenly, from coronary occlusion. He was aged 58 years. He was widely mourned, and it was recognized that Queensland had lost one of her greatest citizens. The local feeling was expressed by a Brisbane poet (F, 1894) in a memorial sonnet:

> Of sea and forest and far waste he sought
> Their tribute; of the denizens animate
> Of shore-marge or blue depths beyond he brought
> Enrichment; of elixirs sealed that wait
> In bark or leaf he learned the secret, fraught
> With measureless good to man; nor once of aught
> He won made Self the heir. As at the gate
> Of the Delivered City moneyless mart
> Was held of God's gift to the perishing, he shared
> With each wayfarer, generous to impart
> As heaven was to bestow. Though less the state
> Accorded him than the wordy Senate yields
> Or trade assiduous, or red martial fields,
> Time shall confirm the verse that names him great.

The Man for a New Country.

The late Dr. Robert Scot Skirving, a self-styled "remembrancer" of Australian medicine, spoke of Joseph Bancroft with reverence and admiration. "There seemed to be nothing in the friendly, untidy town that was Brisbane", he said, "that Bancroft was not connected with in some way or other. He knew a lot, and always made it his job to be helpful. He was consulted by everyone in the place, from the Government down. He was just the man for a new country!" The final observation of this wise and critical physician is especially revealing of the characters that brought esteem to Bancroft in his day, and raised the Bancroft tradition. He was just the man for a new country—this is the sum of all his qualities.

It includes his deep knowledge and searching mind, his resourcefulness, his self-reliance and his untiring industry; it includes the extreme utilitarianism that was his hall-mark, and his widely diversified interests; and it surely includes his dedication to his profession and his scientific aims, his full acceptance of community responsibilities and his leadership in all his fields of interest.

These are the foundations of the Bancroft tradition—the tradition of a great colonial doctor.

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COMPOUND FRACTURES OF THE TIBIA.

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THE fundamental goal of all fracture treatment is to restore function. From a practical point of view, it may be said that we aim to restore a maximum of function in a minimum of time. The methods by which this is achieved vary greatly at times from institution to institution and from surgeon to surgeon.

Bone infection, with the ensuing train of chronic osteomyelitis, discharging sinuses, sequestrectomies, delayed union and non-union, even amputation, is something we all dread. The use of modern antibiotics has made us more courageous and less fearful of infection. As a result, most people in recent years have done things and got away with them—things they would not have dreamed of doing 25 years ago.

It is good to stop and think every now and again and, as it were, "take stock".

Comparisons, I know, are difficult; but certain concrete things do bear comparison. Impressions are awfully inaccurate and inadequate. This, I believe, is a timely thought, particularly now as the ugly staphylococcus is again becoming a great menace as more and more resistant strains appear.

The present series of patients were treated at St. Vincent's Hospital in Sydney between the years 1953 and 1958 inclusive. This series has been divided into two groups, conservative and radical. The conservative group were treated by wound *débridement* and, where possible, primary wound closure, the fracture then being reduced and immobilized as if it had been a closed one. In the

radical group similar wound toilet was carried out, but, as well, the fracture was internally fixed with either screws or wire. Plates were not used in this series.

I have myself examined all the available records with the help of the orthopædic registrar, and have examined as many of these patients as possible at follow-up clinics. In the matter of follow-up, a definite routine was followed to try to keep the study as objective as possible. I should prefer not to draw any conclusions, but to present the facts as I obtained them.

For the purpose of this paper, I have limited the comparisons to the following headings: (i) hospital time, (ii) wound healing, (iii) bone healing, (iv) immobilization time, (v) final result.

One hundred and twenty-seven compound fractures of the tibia were encountered in 116 patients. There were eight early deaths in this series. This reduced the number for study to 118 fractures.

Two amputations were performed. One was an immediate below-knee amputation for a severe crush injury with a "dead leg". The other, a mid-thigh amputation, was performed for vascular disturbance following a fracture which had been internally fixed. The series divided itself as follows: conservative treatment, 70 cases; radical treatment, 48 cases.

Hospital Time.

Excluding the complicated cases in which there were other injuries or both legs were involved, factors which might prolong hospital stay beyond the time required for the treatment of the tibia alone, I found that the average stay in hospital was as follows: conservative treatment, 37·3 days; radical treatment, 88 days.

Wound Healing.

The wounds have been classified into Grades I, II and III, in accordance with criteria of Veliskakis (1959), who recently reported a follow-up of 82 cases of compound fractures of the tibia treated by primary fixation at Derby. Grade I implies puncture wounds "from within" or small lacerations up to one inch in length, with no loss of skin and with minimal muscle damage. Grade II means larger wounds over one inch in length, with contusion of adjacent skin of variable degree and some muscle damage requiring *débridement*, but allowing safe wound closure. Grade III means severe crush injuries with extensive damage to skin and muscles, primary wound closure often being very difficult and sometimes impossible. By the use of this classification, the wounds in this series were as shown in Table I.

TABLE I.

Grade.	Conservative Treatment.	Radical Treatment.
I	16	3
II	55	36
III	4	9

Primary wound healing was ahcieved in 91% of cases in the conservative group, and in 65% in the radical group. In the conservative group, the 9% of infections were all superficial. There were no cases of deep infection or chronic osteomyelitis. In the radical group, the 35% of infections consisted of 14% of superficial skin infections only and 21% of deep infections with chronic osteomyelitis.

Bone Healing.

Bone healing was ultimately achieved in all cases in the conservative group. In the radical group, there was still one tibia ununited after three years. Primary bone healing (achieved in less than eight months) occurred in 80% of cases in the conservative group and in 64% of cases in the radical group. Delayed bone healing (taking more than eight months) occurred in 15% of cases in the conservative group and in 18·5% of cases in the radical group. Ultimate union, not requiring bone grafting, was achieved in 95% of cases in the conservative group and in 82·5% of cases in the radical group. Non-union occurred in 5% of cases in the conservative group and in 17·5% of cases in the radical group. Chronic osteomyelitis was not observed in the conservative group, and occurred in 21% of cases in the radical group.

Immobilization Time.

In the radical group in many of the cases of chronic infection after repeated sequestrectomies and drainage operations union eventually occurred. The average delay before union was achieved was 5·8 months in the conservative group (longest 11 months), and 8·5 months in the radical group (longest 36 months).

Final Result.

The above-mentioned four points are more or less purely mathematics and can be assessed quite objectively. I find this last factor difficult; I had to rely, to a certain extent, on the patients' complaints. Ages varied; occupations varied; compensation and litigation played a large part in some cases. I could say that there were so many normal knees, ankles and legs in each series, so many patients with limited ankle and knee movement and so many with varying degrees of deformity and loss of length; but from a comparative point of view, I did not feel that this meant anything.

I should like to say this much. The good results of radical treatment were very good as regards leg alignment, leg length and knee and ankle function. These mostly occurred in young adults with wounds of Grades I and II. However, the story when infection intervened was a sad one, and the infection rate was not inconsiderable. The over-all results of the conservative group were good. However, slight bossing and a minor degree of shortening, one-quarter to half an inch, were not uncommon. These did not appear to interfere with function of either knee or ankle in the great majority of cases. The poor results of conservative therapy were better and less troublesome than the poor results of the radical group, and in this particular series, chronic bone infection did not occur.

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Reports of Cases.

EXTENSIVE LEG ULCERS IN RHEUMATOID ARTHRITIS.

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ULCERATION of the legs is commonly due to local factors such as venous stasis. Chronic leg ulcers also occur as a complication of various systemic diseases. These include arterial insufficiency (de Takats, 1960), neurological disorders (Editorial, 1957), some of the blood dyscrasias (Pascher and Keen, 1952) and ulcerative colitis (Bacon, 1958).

Schoch (1952) and Allison and Bettley (1957) drew attention to an unusual association of rheumatoid arthritis with indolent ulceration of the legs. This paper describes three further instances of this combination and discusses briefly certain clinical and pathological features.

Case I.

A single woman, aged 39 years, first developed joint pains at the age of 20 years. These began in the proximal interphalangeal and metacarpo-phalangeal joints of both hands, and within the ensuing few months both knees and ankles became involved. During her first hospital admission at the age of 22 years she showed characteristic deformities of rheumatoid arthritis, and since then has suffered from constant pain and stiffness of most of her joints, with gradually progressive disability.

A series of gold injections was given 10 years ago, which was followed by the appearance of a generalized rash. This subsided within a few weeks with persistence of scaliness of the legs. Over the five years prior to her second admission she had been leading a bed and wheelchair existence, and for 18 months had been unable to feed herself. In 1959 she developed "a water blister" over the right first metatarso-phalangeal joint. This burst, leaving a painful ulcer, which spread to the side and the dorsum of the foot. A similar ulcer developed on the left foot, and both ulcers would sometimes enlarge and sometimes heal. A few weeks prior to her admission to hospital, her feet became so painful that she no longer sat in her wheelchair, and developed decubitus ulcers over her sacrum and heels.

On examination in February, 1960, the patient showed changes associated with long-standing rheumatoid arthritis. There were flexor contractures in all limbs, with gross disorganization of many joints and limitation of joint movement. The skin was shiny and atrophic, with large decubitus ulcers over the heels, sacrum and right buttock. In addition, there were irregular, infected ulcers on the dorsum and sides of both feet, measuring 10 cm. by 5 cm. on the left, and 8 cm. by 4 cm. on the right (Figure I). Other abnormal features consisted of an ulcerated lesion of the gum on the right side of the lower jaw, and a right pupil which was larger than the left, reacting briskly to accommodation, but not to light. She was pyrexial and pale, with a blood pressure of 180/95 mm. of mercury. There were no subcutaneous nodules.

A number of investigations were undertaken. The specific gravity of the urine ranged from 1·020 to 1·006. There was persistent mild albuminuria, with one to three red cells and one to three white cells per high-power field. The blood showed the features of a microcytic hypochromic anæmia, with a hæmoglobin content of 10·2 grammes per 100 ml. and a polymorphonuclear leucocytosis of 15,000 cells per cubic millimetre, which subsided after treatment of the infection. The Rose test produced a positive result to a titre of 1:2048. No L.E. cells were found on two occasions. The erythrocyte sedimentation rate was persistently raised to 100-110 mm. during the first hour. The total serum protein content was 7·5 grammes per 100 ml. with diminution of the albumin fraction and elevation of the alpha, beta and gamma globulin fractions. Cryoglobulins were not present. The blood urea nitrogen, serum sodium, serum potassium, serum chloride and serum calcium levels were normal. Liver biopsy showed no evidence of amyloidosis or other abnormality, and biopsy of the gum showed ulcerated salivary tissue infiltrated with eosinophils. The Wassermann, Kahn and Kline tests produced negative results. Biopsy of the leg ulcer showed non-specific necrosis and inflammatory changes. An electrocardiogram was normal. X-ray examination showed much joint destruction with generalized osteoporosis, virtual disappearance of the distal ends of some of the long bones and scattered osteolytic lesions in the thoracic cage. *Proteus* and coagulase-positive staphylococci were grown in culture from swabs taken from the ulcers.

The ulcers were cleaned with "Eusol" and dressed with *tulle gras*, and a short course of chloramphenicol (250 mg. every six hours) was given because of the *Proteus* infection. On this régime the necrotic sloughs disappeared and clean granulation tissue formed. Hydrocortisone ointment (1%) was then applied to the ulcer on the dorsum of the left foot, the right foot acting as a control. Healing on the left proceeded more quickly than on the right, and hydrocortisone ointment was therefore applied to both sides. Within a month, both ulcers were completely healed, but covered by thin, shiny epithelium (Figures II and III).

FIGURE I.
Ulcers on the dorsum of both feet in Case I.

Case II.

A widow, aged 65 years, first noticed stiffness of the right knee at the age of 35 years. This was followed by pain in various other joints, with much fluctuation in intensity and considerable "flitting" of pain from joint to joint. Fifteen years prior to her admission to hospital, the pain "settled" in her fingers, hips and knees, and from then on there was a gradual deterioration. At the age of 58 years she took to a wheelchair, and in the last few months before her admission the thumb deformities became so severe that she could no longer knit.

Ulceration of the legs had begun at the age of 47 years with a small "water blister" on the outer side of the right ankle, which burst, leaving a raw area, which slowly extended. As the ulcer did not heal during the next four years, she was put to bed and her veins were ligated, although she was not previously aware that anything had been wrong with them. During a three months' stay in bed the ulcer gradually filled in, leaving a scaly area which soon afterwards "broke down" again. Exacerbations and remissions occurred over the ensuing years, with rapid extension and the development of large ulcerated areas on the leg. Prior to her admission to hospital in January, 1959, red areas developed on the dorsum and medial sides of both feet, and when she was first examined there were three areas of involvement. Ulcers which had appeared previously on the left leg, 12 cm. above the medial and lateral malleoli, had healed spontaneously. Her past history included an attack of left iritis six years prior to her admission to hospital.

On examination in January, 1959, the patient showed joint deformities characteristic of rheumatoid arthritis. Several large ulcers were present on the right leg involving muscles and tendons anteriorly, medially and posteriorly, the largest measuring 15 cm. in diameter. Ulcers were also present over the base of the toes on both feet. Other abnormal signs consisted of a blood pressure of 160/60 mm. of mercury, an aortic to-and-fro murmur, persistent basal crepitations in the left lung and anæmia. There were no subcutaneous nodules.

A number of investigations were undertaken. The urine had a specific gravity ranging from 1·006 to 1·014 and contained no albumin. Microscopic examination of the urine showed one to two finely granular casts per low-power field, and eight to 10 erythrocytes and one or two leucocytes per high-power field. The hæmoglobin value was 8·7 grammes per 100 ml. (microcytic hypochromic anæmia), and there were 8200 leucocytes per cubic millimetre. The erythrocyte sedimentation rate was 114 mm. in the first hour. L.E. cells were not found on three occasions. Serum protein estimations showed a low albumin fraction and a raised alpha-2 globulin fraction. The blood urea nitrogen content was normal. An electrocardiogram showed changes indicative of left ventricular hypertrophy. An X-ray examination of the right leg showed much osteoporosis, joint destruction, periosteal new bone formation and arterial calcification. An X-ray examination of the chest showed cardiomegaly and obliteration of the left costo-phrenic angle. The Wassermann, Kahn and Kline tests gave negative results. The result of the Rose test was negative.

As the ulcers on the right leg failed to heal with bed rest, silver nitrate compresses and antibiotics, an above-knee amputation was performed. The ulcer on the dorsum of the left foot healed slowly, and by April, 1960, had completely epithelialized.

Pathological examination of the right leg, which had been amputated at the mid-thigh, showed four large, indolent ulcers, all with muscle tissue exposed in their floors, The skin between the ulcers was thickened, desquamated and swollen, and the longitudinal arch of the foot was obliterated by œdema. Microscopic examination confirmed the chronicity of the lesions — thick granulation tissue superficially inflamed, with large, cavernous vessels in the floor and base of the ulcers. Granulation tissue was also found among muscle bundles whose fibres showed patchy necrosis. There were scattered collections of lymphocytes around some of the arteries in the interstitial tissue of the muscle, but no necrobiosis of collagen or palisading of cells was found.

FIGURE II.
Left foot in Case I, just before complete epithelialization.

FIGURE III.
Right foot in Case I, just prior to complete healing.

Case III.

A childless widow, aged 69 years, was admitted to hospital because of loss of consciousness. She had suffered from rheumatoid arthritis for many years, and had in the past been treated with phenylbutazone and, until 12 months prior to her admission to hospital, with cortisone. Her joints had been continuously painful, and she had been leading a bed and wheelchair existence for 10 years. On the day prior to her admission to hospital, she complained of abdominal pain and diarrhœa, and on the morning of her admission was found in a comatose state. Her past history included an unexplained attack of unconsciousness 12 months before admission.

On examination of the patient, there were joint deformities characteristic of rheumatoid arthritis. The

patient was in deep coma, not responding to painful stimuli. Other abnormal signs consisted of sparse body hair, an oval left pupil which reacted normally to light, right basal crepitations, absence of right knee jerk and of both ankle jerks, and a chronic ulcer over the right medial malleolus. The left leg was œdematous with large "blisters" containing blood-stained fluid over the medial side of the leg and the dorsum of the foot.

A number of investigations were undertaken. The blood sugar content on her admission to hospital was 21 mg. per 100 ml.; it rapidly returned to normal after the intravenous infusion of glucose. The urine contained traces of urobilinogen, the specific gravity ranging from 1·002 to 1·012. The hæmoglobin value was 9·1 grammes per 100 ml., the red cells showing anisocytosis and poikilocytosis. The white cell count was 17,000 cells per cubic millimetre, 88% being polymorphs. The blood urea nitrogen content was 30 mg. per 100 ml., the serum sodium content was 124 mEq/l., the serum potassium content was 3·8 mEq/l. and the serum chloride content was 100 mEq/l. There was no growth of organisms from the blister fluid; but towards the end of her illness *Proteus*, staphylococci, hæmolytic streptococci, *Clostridium welchii* and *Escherichia coli* were grown from the sloughs. Culture of both fæces and blood gave negative results. The total serum protein content was 6·1 grammes per 100 ml. (1·3 grammes of albumin, 4·8 grammes of globulin). The gamma globulin content was approximately three times normal. X-ray examination of the chest and skull revealed no abnormality. Skin biopsy from one of the bullous areas after ulceration showed a subacute inflammatory process with necrosis and ulceration. No obliterative vascular changes were seen.

The patient was given glucose intravenously, a transfusion of two pints of blood, 200 mg. of cortisone per day and salt. She regained consciousness gradually, and on the fourth day after her admission to hospital she was able to converse rationally. The blisters on the left leg broke, leaving ulcerated areas which became infected and spread rapidly in width and depth. An excision of the sloughs was performed down to the deep fascia, and the resulting raw area was dressed with hydrogen peroxide and "Eusol". However, further extension occurred producing a "ring-barked" leg, and the patient died one month after her admission, 13 days after excision of the sloughs.

At autopsy there were features of advanced rheumatoid arthritis, decubitus ulcers over the buttocks and a large, irregular ulcer on the left leg measuring 20 by 25 cm., with muscle tissue visible in the floor (Figure IV). Other findings included calcified nodules in both aortic and mitral valves, absence of the right coronary artery, obliteration of the right pleural cavity, gall-stones, cirrhosis of the liver, splenomegaly, uterine fibroid tumours and small adrenals. The pancreas, though macroscopically normal, showed an increase in number and size of islets of Langerhans.

Discussion.

All three patients were suffering from long-standing rheumatoid arthritis with crippling deformities. In each case the ulcers were situated on the dorsum of the foot, at the base of the toes or on the lower part of the leg, away from points normally associated with pressure sores. In all cases the first lesion was a blister which burst, leaving an ulcerated area. Rapid, painful spread occurred long after the appearance of the first skin lesion. Only one patient (Case III) showed evidence of peripheral neuropathy, and none of occlusive vascular disease. L.E. cells were not found in the two living patients, and autopsy showed no evidence of disseminated lupus erythematosus in Case III. Histological examination in each case showed non-specific tissue necrosis and inflammatory change, but no palisading of fibroblasts or significant arteritis.

These ulcers must be differentiated from the ischæmic skin lesions due to arteritis described by Bywaters (1957) and by Epstein and Engleman (1959). None of our patients showed cyanosis or other evidence of vascular insufficiency, and the situation of the ulcers was quite unlike that following gangrene caused by arteritis.

The skin changes in our patients must also be differentiated from the sinuses sometimes overlying disorganized joints in rheumatoid arthritis, through which débris is periodically discharged. These, though deep and slow to heal, do not result in extensive loss of skin surface. We have seen two patients in whom

FIGURE IV.
Extensive deep ulcer on anterior, medial and posterior surfaces of left leg in Case III.

indolent ulcers were situated only over disorganized joints. In one, the ulcers were confined to the first metatarso-phalangeal joints, in the other they were situated over the first and fourth metatarso-phalangeal joints. Although these ulcers also began as "blisters", we have not included them in the present series because they seem to be a complication of sinus formation.

Rivlin (1957) suggested that these ulcers were due to venous stasis following muscular inactivity. However, the involvement of the base of the toes, the commencement as a bullous lesion in each case and the rapid spread in Cases II and III in spite of complete bed rest make stasis a most unlikely ætiological factor. There is a close resemblance between these ulcers and the necrobiosis of ulcerative colitis. In each case the lesion begins as a bulla, which breaks down to form an ulcer showing non-specific features. Secondary infection and rapid extension with massive tissue necrosis may occur. It is tempting to speculate that in each case we are dealing with tissue necrosis and ulceration due to a hypersensitivity response which resembles the Arthus phenomenon.

Few references to this condition occur in the literature. Schoch (1952) mentioned three cases of "Felty's syndrome" with leg ulceration, in addition to his own two, making five cases in all. Allison and Bettley (1957) had six cases which differed in certain aspects from

ours. All their patients had subcutaneous nodules. In each of their cases, palisading of elongated histiocytes was found at the margin of the ulcers, and bullæ were not a prominent feature. Laine and Vainio (1955) from Finland described 12 cases of rheumatoid arthritis in which there was indolent ulceration, usually of the legs. Ogryzlo *et alii* (1959) briefly mentioned two patients with rheumatoid arthritis who came into hospital for treatment of leg ulcers. Both of Ogryzlo's patients showed gross joint deformities, presented the L.E. phenomenon and had suffered from continued active disease for over 30 years. De Takats (1960) also noticed the association of rheumatoid arthritis with recurrent ulceration.

Summary.

Three further cases of rheumatoid arthritis with chronic leg ulcers are described. One patient died, one came to amputation and in one case the ulcers healed, possibly with the help of hydrocortisone ointment. The ulcers were not due to stasis or arteritis and were not associated with sinuses overlying joints. Rather, they resembled the necrobiosis occurring in patients with ulcerative colitis.

Long-standing rheumatoid arthritis must be included in the list of systemic disorders causing non-specific ulceration of the leg.

Acknowledgements.

We wish to thank Dr. R. F. West, Dr. T. Turner and Dr. R. A. Burston for permission to study and report these cases. Dr. S. C. Milazzo and Dr. G. Donald gave considerable help with the manuscript. Our thanks are also due to Dr. M. E. Chinner and Dr. Thorold Grant, who made available two further patients for study whom we only briefly mention in this paper.

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Reviews.

Ciba Foundation Symposium on Congenital Malformations. Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P., and Cecilia M. O'Connor, B.Sc.; 1960. London: J. & A. Churchill Ltd. 8″ × 5″, pp. 320, with 91 illustrations. Price: 45s. (English).

THE study of teratogenesis has made great advances since 1941, when it was rejuvenated by the discovery of the action of maternal rubella on the fœtus. Striking evidence of this advancement is seen in the present international symposium, in which, under the chairmanship of an embryologist, leaders in several fields of teratology from various countries have made notable contributions.

The volume comprises 12 papers with related discussion, and covers recent knowledge on genetic and environmental factors in the production of congenital anomalies. Environmental causes dealt with include tumour-inhibiting chemicals, actinomycin D, pteroylglutamic acid deficiency and the roles of prediabetes and hypothyroidism. Other subjects include chromosome abnormality and hydramnios in relation to congenital malformations, the modification of the activity of certain teratogenic agents, congenital runts and anencephaly.

The discussion following each paper is carefully edited, and the irksome irrelevancies which one tends to associate with this type of publication are absent. Moreover, full references are given to special points mentioned in the discussion. The value of this volume is enhanced by the stimulating general summary discussion, which mainly deals with the time and mode of action of teratogenic agents.

Those with special interest in congenital abnormalities and their causation will find absorbing reading in the whole of this volume, which cannot fail to produce new ideas for their own research. Of particular interest is the variation in the emphasis placed on future problems by "specialists" with different scientific backgrounds. The general medical reader will find much of interest also—for example, in such points as the following: the marked teratogenic activity of actinomycin D, which produces malformations in rats at about one quarter of the therapeutic dosage level; suggestions for possible hormonal treatment of mothers to prevent fœtal wastage; the possibility of modification of teratogenic activity by hormones, vitamins, etc.

Altogether this small volume is to be highly recommended. Its most attractive presentation of authoritative and up-to-date information will do much to broaden interest in teratogenesis.

Communicable and Infectious Diseases: Diagnosis, Prevention, Treatment. By Franklin H. Top, A.B., M.D., M.P.H., F.A.C.P., F.A.A.P., F.A.P.H.A., and collaborators; 1960. St. Louis: The C. V. Mosby Company. Melbourne: W. Ramsay (Surgical) Limited. 9½″ × 6½″, pp. 812, with 137 illustrations. Price: £11.

THE fourth edition of this book has kept up the high standard of previous editions, and has maintained the objectives set forth in the original edition. This edition is the result of the work of 22 contributors, and the wide diversity of the subjects treated is an apt illustration of the broad field of medicine now covered by infectious or communicable diseases. As the author states in his preface, a new edition was deemed necessary because of the many remarkable changes that have occurred, particularly in the field of viral diseases where several new groups of viruses have been discovered. We thus find that several new chapters have been added: acute respiratory infections including adenoviruses and the common cold; enteroviruses; Coxsackie and E.C.H.O. virus infections and staphylococcal infections. It is significant that these are among the best chapters in the book, while some of the chapters on the old-fashioned "common" infectious diseases such as diphtheria, scarlet fever, etc., would appear to need further revision.

We find scant mention of the changes in some of previously mild virus infections, which have apparently changed in character. To take one example, varicella pneumonitis, now a rather common and serious complication of chickenpox in the adult, receives only a brief mention. We still have a lengthy description of the Kenny concept and treatment of poliomyelitis and unnecessary illustrations of the use of hot packs. But these are not serious detractions, and there is much to commend in other chapters. The account of viral hepatitis by John R. Neefe is surely a classic, as indeed is a most interesting description of the fungous disease histoplasmosis. It is now becoming obvious that this disease has an increasing incidence in Australia. The author of this chapter, Dr. Amos Christie, has obviously made an intense study of this most interesting disease, and after reading this chapter one wonders how many cases are being misdiagnosed in this country today.

There are also excellent and up-to-date sections on specific methods of immunization and on serum and serum reactions. It is pleasing to note that the author still considers that the best site for intramuscular injection is the outer and upper third of the thigh. Strangely enough, there appears to be no mention of the subcutaneous test for general reactions as a sign of serum sensitivity.

An interesting comment in acute respiratory infections is that a high carrier rate of pneumococci usually precedes

an epidemic of pneumonia; but as a high carrier rate may be present without an epidemic, it seems likely that another factor as well as the bacterium must be present to cause disease—namely, one of the respiratory viruses. This opinion is in agreement with the observations of certain authorities in Australia, and there is considerable evidence to show that acute infective pneumonia does not occur without a primary virus infection.

Some people will be surprised to see the statement that a cell count of up to 50 in the cerebro-spinal fluid of a patient showing signs of meningismus does not necessarily indicate active meningitis. The subject is still a controversial one.

Most of the excellent coloured plates shown in previous editions have again been reproduced. This book, in spite of the price, can be recommended for all persons whose professional duties necessitate contact with communicable diseases.

The Physiology of the Newborn Infant. By C. A. Smith, M.D.; third edition; 1960. Oxford: Blackwell Scientific Publications Limited. 9¼" × 6¼", pp. 600, with illustrations. Price: 95s.

IT is a tribute to this book, and a commentary on the current interest in the newborn baby, that a third edition should have become necessary within 15 years of its original publication.

It is apparent that in its preparation the author has made himself familiar with all the significant work in this very wide field. There are no fewer than 1355 references in the bibliography; but what could easily have become an indigestible meal of experimental results has in fact been carefully assembled by the author, garnished with his own comments, and served to the reader in a series of interesting courses, each concluding with a clinical summary to aid to its digestion by the ordinary doctor.

In this new edition, Dr. Smith has rewritten his chapters on respiration, circulation, icterus, metabolism, nutrition, renal function, endocrinology and immunology, and he has added new material on the ductus arteriosus, on liver function, blood clotting and carbohydrate metabolism, on infants of diabetic mothers and on adrenal and thyroid hormones.

Gleanings from the summaries, illustrating the importance of physiological observations to daily practice, reveal, for example, that only limited quantities of fat are assimilated by newborn babies, and that if artificial formulæ are required, those based on partly skimmed milk, with calories derived mainly from carbohydrate and protein, are most easily digested; that a cardiac murmur heard at birth carries only a one in 12 probability of heart disease; and that no treatment of premature or full-term infants by thyroid, œstrogenic, adrenal or other hormones as a routine has been shown to be even potentially useful.

Random examples such as these, which could be repeated indefinitely, suffice to illustrate the author's point that a knowledge of the fundamental workings of newborn babies is not simply an academic matter, but essential for all who have to help them to survive.

We can confidently recommend the third edition of this most readable book to all pædiatricians and obstetricians, and to any practitioner who wants to keep abreast of the many interesting developments in this branch of medicine.

The Early History of Surgery. By W. J. Bishop; 1960. London: Robert Hale Limited. 8½" × 5½", pp. 192 with illustrations. Price: 18s. net (English).

THE latest history of surgery to come from the press has been written by a layman who is already well known for his part in the production of an interesting collection of biographies with the title "Notable Names in Medicine and Surgery". Mr. W. J. Bishop has achieved distinction as a bibliophile, as a medical historian and as librarian attached successively to the Royal College of Physicians, the Royal Society of Medicine and the Wellcome Historical Medical Library. With his knowledge, experience and long familiarity with most of the available literature on the subject, he is well qualified to provide students, medical practitioners and the general public with an accurate and reliable summary of the somewhat prosaic efforts of our ancestors to cope with surgical emergencies in peace and war.

The book is noteworthy for its dignified and fluent style of writing, although a few seasoned scholars may well find its reading unattractive and monotonous, as so much of the basic material is to be found in recognized textbooks of medical history. Surgeons would be well advised to keep a copy on their bookshelves for reference, as the author has spared himself no pains in selecting interesting highlights of progress in the advancement of surgical knowledge and practice through the centuries, and has compiled a list of authoritative works at the end of each chapter as a reliable guide to further reading.

The story opens with the crude beginnings and superstitious imaginings of practitioners belonging to the ancient civilizations, and the gradual adoption of more rational procedures as practised by the Greeks and Romans. After we have been reminded of the bizarre surgical practices of the Arabs and their infidel colleagues in mediæval Europe, it is refreshing to arrive at the dawn of scientific investigation while Andreas Vesalius, Ambroise Paré and William Harvey were preparing the foundations for the development of modern surgery from which succeeding generations were to benefit. In the remaining chapters we find illuminating references to the history of lithotomy, plastic surgery, appendicitis and the improved methods of treating fractures. Instances are quoted of the remarkable dexterity and precise anatomical knowledge of the earlier specialist surgeons, whose skill and techniques remained limited in scope until the introduction of anæsthesia and antisepsis.

In a work prepared with such care and erudition, there is little to find in the way of criticism. The Royal College of Surgeons of London is evidently a misprint, the ancient city of Edessa is placed in Asia Minor, and we suspect a mild tendency to glamourize and embellish the achievements of some surgeons in ancient and mediæval times, whereas there is little to excite our admiration of surgical developments until the new philosophy brought initiative and enlightenment in the early sixteenth century.

Progress in Psychotherapy. Edited by Jules H. Masserman, M.D., and J. L. Moreno, M.D.; Volume V. Review and Integrations, 1960. London and New York: Grune & Stratton. 9" × 6", pp. 262. Price: $8.50.

IN this book, an excellent review of the contents of the preceding volumes related to psychotherapy is given by Ehrenwald. Changing concepts in psychotherapy are discussed by Franz Alexander and Paul Hoch. Molly Harrower, in the section devoted to special techniques in psychiatry, writes an interesting paper on the role of the psychologist and projection tests. William Terhune discusses the value of an "emotional check up", taking six days, in executives. Aspects of psychotherapy in alcoholism, delinquents, criminals and "the violent gang" are described by Benedict, by Hendrickson and Holmes, by Schmideberg and by Yablonsky.

In this book there are fewer papers describing the psychiatric scene in foreign countries. Moreno and Masserman describe their visits to Czechoslovakia, the Soviet Union, Austria and Yugoslavia. The length of the articles is more uniform and shorter, and they are of a higher standard, than in the earlier volumes.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"The Basic Physics of Radiation Therapy", by Joseph Selman, M.D.; 1960. Springfield, Illinois: Charles C. Thomas. Oxford: Blackwell Scientific Publications Ltd. 9" × 5¾", pp. 692. Price: £5 16s. 0d. (English).

"Eye Signs in General Disease", by F. Herbert Haessler, M.D.; 1960. Springfield, Illinois: Charles C. Thomas. Oxford: Blackwell Scientific Publications Ltd. 9" × 5¾", pp. 134. Price: 46s. (English).

"Circulatory Ulcers: A Physical Approach", by Hilton G. Tranchell, B.D. (Yale), M.C.S.P. and Charles R. Bannister, M.C.S.P.; 1960. Bristol: John Wright & Sons Ltd. 7¼" × 4¾", pp. 92, with illustrations. Price: 12s. 6d. (English).

"Proceedings of the Pneumoconiosis Conference: held at the University of Witwatersrand, Johannesburg, 1959", edited by A. J. Orenstein, M.D., D.Sc., LL.D., F.R.C.P.; 1960. London: J. and A. Churchill Ltd. 9¼" × 6", pp. 678, with many illustrations. Price: 120s.

The Medical Journal of Australia

SATURDAY, FEBRUARY 4, 1961.

AN ADVANCE IN POST-GRADUATE MEDICAL EDUCATION.

AMONGST the various stock-taking activities engaging the attention of leaders in Australian medicine today, the First Australian Conference on Post-Graduate Medical Education held in Sydney in August, 1960, was of major importance. Arranged under the auspices of the Australian Post-Graduate Federation in Medicine, it brought together a very varied group to discuss a wide range of aspects of post-graduate medical education. This breadth of representation and of subject matter could have brought its own dangers—indeed, some people came to the conference expecting little if anything of permanent value from it. The results, as it happened, belied these fears, and the report summarizing the proceedings of the conference, which has now been published,[1] is a valuable document in relation to post-graduate medical education in Australia.

The main business of the conference was covered by four separate groups, which came together at the opening session and again on the last day to present their reports. The groups were concerned with: (i) surgery, gynæcology and obstetrics, and allied specialties; (ii) medicine and allied specialties; (iii) general practice; (iv) academic departments and full-time laboratories. Each group was so representative and of such standing as to be able to speak with a clear voice and to be heard with respect. Indeed, as the Commonwealth Minister for Health, Dr. Donald Cameron, said at the opening session, the importance of the subject was shown by the numbers of those attending and by the responsible positions which they held; that, he considered, was evidence that the profession was trying to get a clear picture of medical needs in the rapidly changing circumstances of today, and was indicative at once of national growth and of the increasing sense of national unity. Both Dr. Cameron and the Chairman of the Conference, Dr. V. M. Coppleson, also emphasized the fact that, by tradition and force of local circumstances, medical practice in Australia has developed and undoubtedly will continue to develop on its own special and particular pattern; this is notably so in relation to the work of the general practitioner, on whom, according to Dr. Coppleson's estimate, probably 70% or more of the medical care of Australia depends.

It is virtually impossible to summarize summaries, so that the most we can do here is to refer to certain highlights of the reports of the groups. Those who are interested in one or other or all of the aspects of medical education considered are urged to read the original summarized report in the *Bulletin*. Indeed, so much ground was covered and so much constructive and informed comment was made, much of it particularly relevant to the Australian scene, that the report becomes a basic document; previous study of it should be a qualification for anyone who wishes to pontificate on post-graduate medical education in Australia in the future.

Perhaps the most significant single point that emerges from the conference is the recommendation that two years should be spent in residence in a hospital by all medical graduates after graduating. This may sound a simple thing, since a considerable number of graduates already do spend a second year in hospital, but to make it universal would be revolutionary and would, if adopted, have wide repercussions in hospital administration and finance as well as in private medical practice. However, it was recommended by all four groups, apparently quite independently of one another. The group concerned with academic departments and full-time laboratories considered the following main categories: members of a university staff and a teaching department, preclinical and clinical; career investigators; clinical pathologists. In every case two years' residence in hospital was thought necessary, and special qualification of the scope of hospital experience was suggested in only one case—that of the individual training for a university clinical department, for whom it was considered that the first six months at least of the second year should be spent in a specialty or special area of the clinical field concerned. In the group dealing with general practice, it was unanimously agreed that there should be a basic period of training of two years' duration immediately after graduation and that this should be common to all graduates. The first 21 months should comprise a rotating programme of clinical appointments, sufficiently flexible to allow appointments to be taken in one or several hospitals; a three months' period of training in general practice would follow. The group on medicine and allied specialties concluded that a basic period of two years in hospital on a rotating basis was essential before more specialized training. Emphasis was placed on diversity of experience at this stage, and the group went beyond its terms of reference to express the opinion that a period of two years in a hospital was necessary for a doctor going into any form of medical practice. The group which discussed the training of surgeons recommended that the first two years after graduation should be spent in a hospital as a resident medical officer in medicine, surgery and other specialties, with a minimum of six months in medicine and allied subjects, and six months in surgery.

Each group was seeking to devise a programme of training for the first five years after graduation, and the

[1] *Bull. post-grad. Comm. Med. Univ. Sydney*, 1960, 16: 211 (November).

plans for the concluding three years naturally differ widely in each of the four fields covered. The recommendation about the two years in hospital, however, remains in every case, with only minor variations in detail. This was apparently the mind of the whole conference, and as such is impressive. Reference was made to the practical difficulties involved in such a system, and a few constructive suggestions were made on putting it into practice, but no one suggested that the idea should be put aside because of the practical difficulties. It seems clear that it will have to engage the serious attention of hospital administrators and others immediately concerned.

Much more of importance besides this particular point emerges from the report, and it is clear that this is just the beginning of a new era in post-graduate medical education. The ice has been broken, and more constructive ideas and fruitful discussion are bound to follow. It will now be generally appreciated that post-graduate is just as important as undergraduate medical education in the modern world, and that it needs just as much planning and care. Moreover, it is gradually dawning on our minds that this vital task cannot be seriously undertaken without money and the cooperation of universities, hospitals and a considerable section of the medical profession. It must be a source of satisfaction and relief to those who have pioneered this work for years to realize that basic ideas are at last beginning to find wider acceptance and support. Another conference on the subject is planned to be held within the next five years.

Current Comment.

ALVEOLAR HYDATID DISEASE.

It is over a hundred years since Virchow pointed out that there were two distinct types of hydatid disease, though he believed that they were variant forms of the one species. The unusual form, now known as *Echinococcus multilocularis*, was found only in man, and it had a peculiarly restricted distribution, being for a long time known only from Bavaria, Tirol and some other central European districts. Some writers considered it a distinct species, but no corresponding adult form was known, and for a long time the subject was wrapped in confusion. H. R. Dew, in his authoritative book on hydatid disease in 1928, comes to the conclusion that only one species is concerned, and that "*Echinococcus alveolaris*", as he calls it, is simply a variant of the familiar *E. granulosus*, and suggests that in the countries in which it occurs, "the larva may find such special, necessary and probably indispensable conditions, either climatic or nutritive, which could tend to cause this type generally to appear"—a view which, in the wisdom of hindsight, now seems quaintly naïve. It is only within the last decade that the existence of two distinct species of parasite has been finally confirmed and their respective life histories elucidated, and a most interesting story it is. The essential details are set out in an editorial article on "Echinococcus in North America" contributed by E. L. Schiller[1] in the *Annals of Internal Medicine*.

The clue which finally led to the solution of the problem was the discovery that alveolar hydatid disease was an important cause of morbidity among the Eskimo inhabitants of St. Lawrence Island, off the coast of Alaska. At the same time it was discovered that the parasite also occurred as a natural infection among ground squirrels and voles in the same area, a lead being thus provided as to the parasite's normal cycle. It was soon demonstrated that the St. Lawrence Island parasite was identical with that so long known from Central Europe, and H. Vogel, in Germany, was quick to follow up the new knowledge and track down the adult parasite. This work has now been amplified by a series of papers from Schiller and other workers in Alaska. Briefly, the adult form of *E. multilocularis* is primarily a parasite of the fox, and the larval stage occurs in small rodents such as field mice, voles and lemmings. The larval stage is not capable of proper development in ungulates, hence its failure to establish itself under pastoral conditions, where the dog-sheep cycle makes reproduction so easy for *E. granulosus*. However, in the arctic tundra, with its enormous population of voles, lemmings and foxes, conditions are ideal for *E. multilocularis*, and the indigenous inhabitants are exposed to infestation through their dogs or though the foxes which they trap for their skins. The fact that the infestation rate among huskies has in some instances been found to be high should be remembered when fresh stock is imported from the northern hemisphere for antarctic expeditions. A further adaptation to arctic conditions is seen in the fact that the eggs of *E. multilocularis* are extremely resistant to cold and capable of survival for very long periods under such conditions. It now seems likely that this parasite is endemic throughout vast regions of the arctic and subarctic zones (it is known from Russia and Siberia), but that it has long remained unrecognized because opportunities of contact with civilized man have been sparse. The area in Central Europe, from which it was originally described, thus appears as an outlier from its main zone of distribution.

E. multilocularis has never been recorded in Australia, and from what has been said it is evident that it is never likely to establish itself here. This, of course, does not exclude the possibility that infested individuals might come here with the disease already present. Clinically the differences between the two species are important. The larva of *E. multilocularis* almost invariably settles in the liver, and there develops in a slowly progressive manner which is much more malignant than pertains with *E. granulosus*. *E. multilocularis* is not encapsulated; if it is discovered early, cure may be effected by radical resection of the infected lobe of the liver; but if the disease is already widely diffused through the liver when discovered, the lesion is slowly progressive, and apparently ultimately fatal. Schiller states that human patients who become infected may remain asymptomatic for many years, and that when symptoms develop the hepatic disease clinically resembles a slowly developing mucoid carcinoma.

Schiller also gives an outline of the present state of knowledge about the distribution of *E. granulosus* in North America. Hydatid disease in man is rare in the United States, and at one time some writers maintained that it was found only in patients who had picked up the infection overseas. According to A. M. Katz and Chia-Tung Pan[2] the first autochthonous case to be reported in the United States was described in 1900, and in recent years a growing number of cases have been recorded in patients who have never been outside their own or neighbouring States; it is clear that many endemic foci exist. Schiller mentions that hydatid cysts have been found to be prevalent in hogs slaughtered in certain abattoirs in Virginia and Tennessee, and that there is evidence of an endemic sylvatic cycle in Minnesota, where the parasite has been recovered from wolves and moose. Further north, on the other hand, recent surveys have shown that hydatid disease due to *E. granulosus* is endemic over wide areas of northern Canada and of Alaska, where a sylvatic cycle is maintained between wolves and moose, caribou and deer, and the disease is prevalent in some Eskimo and Indian populations. Both *E. granulosus* and *E. multilocularis* are therefore firmly entrenched in northern North America, the former based primarily on a cycle involving wolf, moose and reindeer, the latter

[1] *Ann. intern. Med.*, 1960, 52: 464 (February).

[2] *Amer. J. Med.*, 1958, 25: 759 (November).

based on a fox-rodent cycle. In both cases dogs, which play such an important role in the life of the indigenous inhabitants, are liable to become involved, and Schiller's account of the primitive conditions prevailing in arctic villages makes the risk to man in these circumstances only too obvious.

REHABILITATION OF LEPROSY SUFFERERS.

EARLY detection and treatment of leprosy may prevent the deformities which brand the leprosy patient for life and make it difficult for him to be accepted in society as a normal member of the community even after he has been cured. This important point was emphasized at the Scientific Meeting on Rehabilitation in Leprosy recently held at Vellore, India. Sponsored by the World Health Organization, the Leonard Wood Memorial (American Leprosy Foundation) and the International Society for the Rehabilitation of the Disabled, the meeting was attended by leading scientists and plastic and orthopædic surgeons from a number of countries, including India, Japan, Mexico, Philippines, the United Kingdom and the United States. Dr. James A. Doull, Medical Director of the Leonard Wood Memorial, Washington, U.S.A., was elected chairman of the meeting.

A report adopted by the meeting said that there were probably 10,000,000 sufferers from leprosy in the world today. Of these, fewer than 5% could be accommodated in existing institutions. The vast majority were living in their own homes, and probably not more than 20% were receiving treatment of any kind. It had been estimated by W.H.O. that 25% of all leprosy patients suffered from some degree of physical disability. As a means of accelerating progress in rehabilitation the meeting strongly urged that leprosy be studied and treated along with other diseases in centres where a wide range of medical scientists was available. Leprosy research should no longer be carried out only in institutions confined to leprosy and by leprosy specialists who did not have the assistance of basic scientists and experts in other fields. In addition to strengthening leprosy research this would have a great psychological advantage. It was felt that so long as the medical profession continued to treat leprosy separately from all other diseases, the public could hardly be expected to believe that it was not "a disease apart".

The meeting stressed the need for large-scale educational and propaganda campaigns to inform the public about the facts of the disease. It was felt that widespread and deep-rooted prejudices with regard to leprosy formed the greatest single barrier to rehabilitation. The public should be educated to appreciate the fact that leprosy was curable and that the deformities which remained after cure did not necessarily mean that the disease was still active. Rehabilitation agencies in various fields were urged to include leprosy patients in their programmes. It was felt that the experiences of those agencies in combating prejudice concerning physical disability and in mobilizing professional and public understanding could be a great asset in developing future leprosy programmes. Equal stress was laid on the education of the patient himself. He should know what precautions to take and what routines to follow to avoid getting deformities. Rehabilitation should begin when the disease was first diagnosed.

BRITISH EMPIRE CANCER CAMPAIGN.

THE thirty-seventh annual report of the British Empire Cancer Campaign covering the year 1959[1] is now to hand. Of the two volumes the larger deals with the scientific results, and this will naturally be more interesting to medical readers. Certain features in former reports are repeated here. The list of carcinogens is extended, but it might be advanced in criticism that this, though useful, should not be expected to throw much light on the central problem; indeed, one might well suggest that the term carcinogen be applied to the susceptible tissue and not to the provocative factor. The delicate equilibrium between disciplined repair and replenishment on the one hand and undisciplined growth on the other can be upset by many impinging agents—X rays, ultraviolet light, certain chemical groupings, physical friction and even heat, as in pharyngeal cancer following the eating of over-hot rice. In former publications there were reports of new technical procedures in physical and organic chemistry which had applications far beyond pathology; this has continued, but to a lesser extent, though special attention should be devoted to electron spin resonance spectroscopy which is bound to be of far-reaching importance in medical science and biology in all its branches.

A few other matters of interest may be dealt with here. In former reports it was shown that normally lactating mammary glands do not respond to carcinogen attack, whereas if suckling is prevented cancer is produced. The review in these columns last year pointed out a fact well known in veterinary practice that the udder of the dairy cow, which is surely an abnormal structure, displays a remarkable immunity as regards cancer. No notice has been taken of this comment.

It has at last been found experimentally that cigarette smoke is carcinogenic. The low incidence in the United States is attributed to the custom prevailing there of discarding most of the cigarette after a brief spell of smoking; sure enough, a high concentration of phenolic matter has been found in the stump. Experiments on mice have shown that reaction to carcinogen varies with the age of the animal; clinicians have long wondered why the sharp age peak in the human has not aroused more interest in animal experimentation. It is pleasing to note the growing attention to plant pathology. After all, the riotous proliferation in the oak gall (whether viral or chemical let experts decide) calls for organized investigation. Australia figures handsomely in this report, at any rate in the space allocated.

[1] "British Empire Cancer Campaign: Thirty-Seventh Annual Report Covering the Year 1959". Part 1 (pp. 44), The Chairman's Statement and the Accounts of the Central Organization; Part 2 (pp. 684), The Scientific Report. London: British Empire Cancer Campaign. 9¾" × 7¼". Prices not stated.

ADVICE FOR VISITORS TO THE UNITED KINGDOM.

THE Commonwealth Medical Advisory Bureau in London has sent us a copy of its latest "Summary of Regulations for Postgraduate Diplomas and of Courses of Instruction in Postgraduate Medicine". This provides detailed information that will be helpful to any medical graduate visiting the United Kingdom for medical study. Copies of the summary are available at the offices of the several Branches of the B.M.A. in Australia and of the State post-graduate organizations.

The Bureau, which was established by the Council of the B.M.A. in 1948, exists to welcome and provide an advisory service to all medical practitioners visiting the United Kingdom from other parts of the Commonwealth. Assistance will be given to visitors, not only in planning and arranging post-graduate work, but in obtaining suitable accommodation and in dealing with the variety of other matters that concern a stranger in a strange land. The Bureau states that it can be of most service if a visitor gives as long notice as possible of his intended visit to the United Kingdom; information on the following lines is useful—expected date of arrival, whether accompanied by wife and children, period of stay, objects of visit and ways in which the Bureau can assist. A letter of introduction from the Honorary Secretary of the Branch of the B.M.A. to which the visitor belongs is helpful. Communications should be addressed to Dr. R. A. Pallister, Medical Director, Commonwealth Medical Advisory Bureau, B.M.A. House, Tavistock Square, London, W.C.1, England.

Abstracts from Medical Literature.

RADIOLOGY.

Regional Enteritis in Children.

J. E. MOSELEY *et alii* (*Amer. J. Roentgenol.*, September, 1960) state that the early diagnosis of regional enteritis in childhood requires an awareness of the substantial incidence of the condition in children, particularly in the group between 10 and 15 years of age. At the onset the clinical manifestations may be predominantly extraintestinal, suggesting a number of unrelated conditions, or may present a picture indistinguishable from acute appendicitis. In many cases, however, the clinical findings conform to the more typical picture of abdominal pain, diarrhœa and fever, with gradually increasing intensity. A significant number of children with acute ileitis recover spontaneously and the disease apparently does not progress to a chronic stage. Others do go on to develop the chronic form of granulomatous ileitis. In the latter group a careful interrogation of the patient or the parents will uncover a history of previous mild abdominal distress, diarrhœa, fever or ano-rectal fistulæ. The relationship, if any, between non-recurring, non-sclerosing ileitis and the chronic granulomatous form of enteritis is still undetermined. Of 28 cases of regional enteritis studied in children ranging in age from 7 to 15 years, 20 involved the distal ileum, 4 were cases of ileo-jejunitis and 4 affected both the ileum and colon. The X-ray findings were essentially similar to those described in adults. However, 23 of the 28 cases were of the non-stenotic variety, reflecting the relatively short duration of the disease. Proximal and distal extension of the disease process, despite repeated X-ray examinations over a period of many years, was not observed.

Craniosynostosis.

H. W. KNUDSON AND R. A. FLAHERTY (*Amer. J. Roentgenol.*, September, 1960) state that the radiological features of craniosynostosis are characteristic and the individual suture involvement can usually be specified to guide the surgeon. Although the suture may be fused for only a very short segment, growth along the entire suture is halted. Clinically, and even after exposure of the suture at the operating table, the suture may appear normal. The entire suture must be excised regardless of the actual extent of the fusion. Optimal results in preventing brain damage and severe deformity require early surgical attack. Operation after the age of three years offers little chance of improvement.

Visualization of the Common Duct with Non-Visualization of the Gall-Bladder.

D. S. DANN *et alii* (*Amer. J. Roentgenol.*, December, 1959) state that of 200 patients whose gall-bladders could not be visualized by oral cholecystography, 30% showed visualization of the common duct. Of the group in whom the common duct was visualized, 28 patients were operated upon and all exhibited a definite pathological condition in the gall-bladder. Visualization of the common duct indicates that the contrast medium has been ingested, has passed from mouth to stomach through the pylorus, has remained long enough in the small bowel for absorption, has reached the liver via the portal circulation, and has been excreted by the liver cells and drained off by the bile ducts. This leaves the cystic duct and gall-bladder as the only possible sites for a pathological condition to explain non-visualization of this organ.

Lower Urinary Tract Disorders in Children.

G. L. ROLLESTON (*J. Coll. Radiol. Aust.*, June, 1960) discusses the technique and interpretation of the cystogram taken during micturition and assesses its value as a method of differentiating between obstructive and functional abnormalities of the lower part of the urinary tract. In order to differentiate between these two groups by cystography during micturition, it is necessary to obtain the following information: (i) the capacity and tone of the bladder; (ii) the presence or absence of vesico-ureteric reflux; (iii) the functional anatomy of the bladder neck and urethra during micturition; (iv) the ability of the bladder to empty with and without the stretch reflex. He concludes that the cystogram taken during micturition is a valuable diagnostic procedure, but that the information it reveals is only a portion of the evidence that is necessary to make a diagnosis. A detailed and careful history, direct observation of the child's habits and cystoscopy are all equally important.

Chronic Pyelonephritis and Vesico-Ureteric Reflux.

C. J. HODSON AND D. EDWARDS (*Clin. Radiol.* (*J. Fac. Radiol.*), October, 1960) draw attention to the frequent association between chronic pyelonephritis and vesico-ureteric reflux. They describe the radiological signs which indicate the presence of reflux. These changes are as follows: (i) Radiological evidence of chronic pyelonephritis. The radiological diagnosis of this condition is based on the demonstration of localized diminution in thickness of the renal substance usually associated with shrinkage of the adjacent pyramid leading to calycine clubbing or caliectasis. (ii) Very small kidneys with generalized caliectasis. This finding is comparatively rare. The commonest variety of small kidney, which is probably the late result of arterial lesions or arteriosclerosis, possesses a normal calycine pattern, i.e., the pyramids are preserved. Congenital hypoplastic kidneys may possess pyramids or show caliectasis but as a rule the ureter in these cases is hypoplastic as well. In the group with which the authors are concerned, the kidney is small, with slightly irregular outline, marked narrowing of its substance and generalized caliectasis. Characteristically the ureter is large, which distinguishes it from the hypoplastic kidney. (iii) Unexplained non-obstructive dilatation of the upper part of the urinary tract. Any instance of dilatation of a part or the whole of the upper part of the urinary tract, in the absence of obstruction or other obvious cause, may be due to reflux. In the kidney such dilatation takes the form of pyelonephritic changes and slight enlargement of the renal pelvis. In the ureter dilatation may be generalized or involve only the lower third. (iv) Undue distensibility of the urinary tract. The degree of distensibility when the ureters are compressed during urography varies to a certain extent with the individual. Nevertheless an abnormal degree of distension during compression, and particularly distension seen in a film taken immediately after micturition, is direct evidence of reflux. (v) A bladder residue in a child. A residue in children is often an indication of bladder neck obstruction, in which case the bladder walls shows trabeculation. It may, however, result from reflux. In this event it is a false residue in that it represents the amount of urine which has passed back into the ureters during micturition, held there when the act is completed and the bladder emptied, and returned to the bladder when elevation of its wall has occurred. (vi) Unexplained renal osteodystrophy. When this occurs in the absence of a history of nephritis, the renal failure may be due to prolonged back pressure. In reviewing the first 37 patients in whom these criteria led to an investigation by micturating cystography, 31 were shown to have vesico-ureteric reflux.

Mixed Tumours of the Lung or Hamarto-Chondromas.

E. M. BATESON AND E. K. ABBOTT (*Clin. Radiol.* (*J. Fac. Radiol.*), October, 1960) review the literature on the hamarto-chondroma as found in the lungs, record 15 new cases, and describe and stress the importance of radiological investigations in their diagnosis. They summarize their conclusions as follows: (i) It is impossible to diagnose or even suspect the presence of an endobronchial hamarto-chondroma on the results of radiological investigation. (ii) Large intrapulmonary masses which show a lobulated outline and which contain irregular areas of calcification will almost certainly prove to be hamarto-chondromas. (iii) Small intrapulmonary shadows showing a well defined, lobulated outline, with no calcification and no satellite shadows, have a strong possibility of being hamarto-chondromas, and a large proportion of these tumours have this appearance. (iv) Small shadows containing calcification are more likely to be tuberculomas than hamarto-chondromas, but the latter diagnosis should be considered, particularly if the other features of tuberculous lesions are absent. (v) Small round or oval shadows without lobulation, or large masses which may or may not be lobulated may be hamarto-chondromas, but if calcification is absent this is an unlikely diagnosis in lesions of these types and should only be considered as a more remote possibility.

A Renal Cortical Index Obtained by Urography.

P. VUORINEN *et alii* (*Brit. J. Radiol.*, October, 1960) describe a simple method for measuring and calculating a renal cortical index (R.C.I.) from urography films. The R.C.I. expresses the ratio between the area of the pelvis and calyces and that of the renal parenchyma. The preliminary results seem to indicate that

the R.C.I. can serve as an expression of the functional ability of the kidneys or of one kidney separately. In pathological states the R.C.I. tends to rise. The limit for normal and pathological values of the R.C.I. is probably about 0·40.

Hæmangiopericytoma: Angiographic Findings.

N. JOFFE (*Brit. J. Radiol.*, October, 1960) discusses a relatively rare form of blood-vessel tumour termed a hæmangiopericytoma and describes the angiographic findings in a case of this tumour occurring in the thigh. Radiologically, a hæmangiopericytoma usually presents as a soft tissue mass. Pressure erosion of an adjacent bone may be demonstrated, while areas of calcification within the tumour mass have been described. The plain film findings do not enable one to differentiate it from other soft tissue tumours. The arterial phase of the angiogram in the case presented showed slight medial displacement of the distal portion of the femoral artery. Fairly numerous but normal-looking, small arterial twigs were noted in the region of the soft tissue mass. There were no obviously pathological vessels and no filling of the veins in the arterial phase indicative of direct arterio-venous shunts. In the capillary-early venous phase there was a diffuse more or less uniform contrast "blush" outlining the mass and showing it to consist of two main parts giving the tumour a somewhat lobulated appearance. A few areas of avascularity within the "blush" suggested the possibility of necrotic tumour tissue or hæmatoma formation. Pathological vessels were noted at the lower pole of the tumour, while a rather intense "capillary" circulation was demonstrated on the inner and inferior aspects of the mass. In the venous phase persistence and slight accentuation of the contrast "blush" was demonstrated, together with fairly large draining veins. The pathological circulation at the lower pole was still evident. While the angiographic findings did not permit a diagnosis of the nature of the new growth apart from indicating a vascular soft tissue tumour, they did demonstrate a pathological circulation suggestive of malignancy; this was subsequently confirmed by the histological findings.

The Ileo-Caecal Valve in Large Bowel Obstruction.

L. LOVE (*Radiology*, September, 1960) states that in cases of incompetence, or relative incompetence, of the ileo-caecal valve with large bowel obstruction, one can expect to find hypertrophy of the colon with multiple distended loops of small bowel due to reflux. This type of obstruction is less likely to result in perforation at the caecum, and can be handled by transverse colostomy. With a competent valve, the picture is one of a large dilated colon with a large thin-walled caecum. If this progresses, small bowel distension occurs, probably due to secondary obstruction as a result of the fluid-filled caecum and a tightly closed ileo-caecal valve, with eventual perforation, if immediate surgery is not performed. Caecostomy should be done to inspect the caecum directly and to relieve the pressure upon it.

RADIOTHERAPY.

Naso-Pharyngeal Fibroma.

G. E. MASSOUD AND H. K. AWWAD (*Clin. Radiol.* (*J. Fac. Radiol.*), July, 1960) discuss the treatment of naso-pharyngeal fibroma in the light of seven cases seen among 49 naso-pharyngeal tumours; all the patients were males, and their ages ranged from 12 to 25 years. Direct forward extension of the tumour into one or both nasal fossæ was noted in all patients. The maxillary antrum can also be involved, and in one patient the sella turcica was enlarged with destruction of the floor. All patients were treated by deep X-ray therapy, the first being given a small dose of 1500*r* in 3 weeks, and subsequent patients were given 3500*r* to 4000*r* in 4 to 5 weeks. These patients have subsequently remained symptom-free for periods of six, three and one and a half years. One patient showed regression with local recurrence two years later. This was retreated with good response, but one year later involvement of cervical lymph nodes became evident. The malignant potentiality of the tumour is not emphasized in the literature and is denied by some. In the cases presented by the authors there was a high incidence of bone destruction. The authors consider that the pattern of response suggests that radiation therapy can play a useful role in treatment. Cure may be possible, and irradiation could be of value as a pre-operative measure to induce hæmostasis and partial regression of the tumour.

Scanograph in Diagnosis of Ectopic Thyroid Masses.

J. A. HERRILL *et alii* (*Ann. Otol.* (*St Louis*), March, 1959) discuss the use of the scanograph in the diagnosis of masses at the base of the tongue. They point out that pre-operative differentiation of thyroglossal duct cyst, accessory thyroid tissue and an ectopic thyroid gland is most important in the management of masses presenting at the base of the tongue in children. The affinity of normal thyroid tissue for iodine in a normal or ectopic situation makes possible its delineation by the administration of an oral tracer dose of ^{131}I followed by the taking of scanograms of the oral pharynx and neck 24 hours later. The method lacks the hazards of surgical biopsy and gives information as to the entire distribution of thyroid tissue.

Glomus Tumours.

R. J. REEVES AND O. W. DOYLE (*Amer. J. Roentgenol.*, March, 1959) present four cases of glomus tumour involving the middle ear. The patients first noted deafness, dizziness and pain related to the ear involved. Biopsy was attempted in each case but complete removal of the tumour was difficult because of the situation. Radiation therapy was given post-operatively and all patients were doing well when last seen, in one case several years after definitive treatment. The authors state that glomus tumours are usually found in relation to the jugular bulb below the floor of the middle ear and microscopically resemble the carotid body. Most are considered benign but in some 15% of reported cases the tumours are malignant, spreading slowly and metastasizing rarely. Unless tumour cells can be demonstrated invading the capsule of the tumour or vessels, it is difficult to make a diagnosis of malignancy. This fact makes the evaluation of radiation therapy very difficult.

Reaction to Therapeutic Whole-Body Irradiation.

W. C. LEVIN *et alii* (*J. Amer. med. Ass.*, February 27, 1960) discuss the initial clinical reaction to therapeutic whole-body irradiation in relation to civil defence considerations. Early clinical manifestations displayed by 11 cancer patients after whole-body irradiation in one single large dose are compared with previous reports of radiation sickness and with acute sequelæ observed in persons exposed in nuclear accidents. From this comparison, the authors conclude that the typical initial reaction to penetrating radiation in the several-hundred-röntgen range appears to be as follows: symptoms occur chiefly in the form of fatigue, nausea and vomiting; these begin to develop within two to four hours after exposure, they reach a climax between five and eight hours afterwards and they completely subside on the second or third day. During the intense phase of the disturbance, extending from approximately 4 to 10 hours after exposure, about 60% of irradiated persons experience various degrees of disability. The authors consider that, despite its transitory nature, the reaction may present a major medical problem in civil defence situations because of coincidence, and thereby interference, with evacuation plans and first-aid efforts. They conclude that the early sequelæ of exposure to penetrating radiation therefore require the attention of all doctors who may have to manage such emergencies.

Keloids and Hypertrophic Scars.

H. A. S. VAN DEN BRENK AND C. C. J. MINTY (*Brit. J. Surg.*, May, 1960) discuss the use of radiation in the management of keloids and hypertrophic scars. They present the results in 147 consecutive cases seen at the Peter MacCallum Clinic, Melbourne, and consider the rationale of the use of ionizing radiation in the treatment of hypertrophic scars and keloids. The results of cogent experimental and pathological studies are described and illustrated. The authors state that the early post-operative application of a single tissue dose of radiation of not less than 1000*r* is the only reliable procedure in preventing recurrence of keloids and hypertrophic scars; however, this dose will cause cutaneous atrophy. They emphasize the danger of an effective irradiation dose in causing retardation of bone growth in children, and cite a case in which irradiation of keloids, which followed burns at the age of 16 months, led to subsequent hypoplasia of the hand and forearm. The authors consider that so-called good results attributed to primary irradiation (without surgery) of established keloids largely result from spontaneous natural regression of such lesions and the masking effect of irradiation atrophy. They agree that small doses of radiation do appear to cause subjective relief of symptoms, but state that a real objective response seldom results.

Medical Education.

THE NEW MEDICAL SCHOOL OF THE UNIVERSITY OF NEW SOUTH WALES.

To the medical profession, particularly in New South Wales, the launching of the new Medical School of the University of New South Wales is an historic occasion. Between February 27 and March 3, 1961, the first students will enrol.

This year the heavily taxed Medical School of the University of Sydney will begin to share its burdens, and the expanding future needs of the community for medical practitioners, research workers, teachers and others will be met. The University of New South Wales acknowledges gratefully the help given to the new school by the University of Sydney.

The logistics of establishing a medical school involve the appointment of staff and the provision of accommodation, equipment and supplies at all levels. The new Medical School is following the time-table of staff appointments recommended by an expert committee.[1] The whole of the staff to teach the pre-clinical subjects, anatomy, physiology and biochemistry, has already been appointed or will be appointed early in 1961. During 1961-1962 the teaching staff of the paraclinical and clinical schools will be brought up to one-half strength; thereafter a progressive build-up will occur until 1964, when clinical instruction is due to commence.

A very gratifying response has been obtained to the announcement of staff vacancies in the various categories, and details of the appointees and their academic distinctions will be published in these columns from time to time.

To establish the new Medical School as a worthy partner of that at the University of Sydney is a community responsibility. The New South Wales Government and the Commonwealth Government through the Australian Universities Commission is providing the strong financial support that is vitally necessary for a project of this magnitude.

Students will be accommodated in new buildings for both pre-medical and pre-clinical studies. Two large new buildings, the one for microbiology, biochemistry, and related subjects (School of Biological Sciences), the other for anatomy, physiology and pathology, are sited at the eastern end of the University campus. The two buildings will be connected on six floors. An additional floor, the seventh, on one of the buildings (Biological Sciences) will provide accommodation for a common library. It will have 10,000 square feet of floor space, and a substantial grant has been made by the New South Wales Government to furnish and stock it. This library will subscribe to over 500 medical journals, as well as providing a good coverage of reference texts and monographs in all the subjects of the medical course and the related biological sciences. In addition to the library, the Biological Sciences Building will house the first year general biology course. Nearby a separate block of lecture theatres will serve the needs of both buildings.

The accommodation of the medical school has been planned throughout for a maximum annual intake of 200 students. It will be equipped with the most modern aids to teaching and research, and substantial expenditure is envisaged to meet the cost of this equipment.

The Medical School of the University of New South Wales will develop its clinical facilities in and around existing hospitals related to the campus. Two general hospitals will be chiefly concerned, (i) a new hospital to be built adjacent to the campus and pre-clinical schools, and (ii) the Prince Henry Hospital, situated on the coast, five miles away.

The new hospital will afford the opportunity of rehousing Sydney Hospital in the most modern accommodation, when demolitions make way for the extension of Martin Place and a new Parliament House.

Meanwhile, the Prince Henry Hospital is the first big hospital in the area, available and able to be fitted out to take students for clinical instruction by January, 1964, the date on which entry to the clinical years is due to begin.

Prince Henry Hospital was formerly a very large infectious diseases hospital of approximately 750 beds. With advances in methods of controlling infections, it is available for general patients, and all but 100 beds (to be reserved for infectious diseases) are to be made available for general medicine and surgery. The ward accommodation and that for nurses are adequate, but the auxiliary services of a general hospital, as well as teaching and research facilities, must be newly built.

The New South Wales Government has indicated that it will provide the finance necessary for psychiatric accommodation, additional operation theatres and the auxiliary services, such as pathology, radiology, central supply, recovery and intensive therapy, occupation and rehabilitation services, etc. The most urgent building requirements, costing £1,600,000, are already under way.

Plans for the teaching hospitals envisage commencement of the new hospital adjacent to the campus during the triennium 1961-1963. With the anticipated clinical entry of 150 to 200 students *per annum*, full use of two large general hospitals will be essential. The University is anxious to have a single central out-patient department erected at Randwick adjacent to the campus. One hundred and seventy-two thousand people live within four miles of this site.

The clinical facilities of the new medical school will thus be provided in an integrated system of hospitals centred on the medical school. Also included in the group will be special hospitals for the teaching of pædiatrics, and obstetrics and gynæcology.

The teaching hospitals will also provide accommodation for intermediate and private patients according to their needs. They will also be invited to cooperate in the teaching programme. This new arrangement will ensure that the students will have opportunities of gaining experience with the widest possible range of patients.

THE CURRICULUM.

The curriculum will aim to train future medical practitioners. The course of instruction will also provide a sound foundation for future scientists, teachers and public health workers in medicine.

The design of the course will accord fully with the recommendations of the general Medical Council (1957). It will extend over six years and will lead to the double qualification of M.B., B.S. It will comprise (i) one year of pre-medical studies, (ii) two years of pre-clinical studies, (iii) three years of clinical studies.

Throughout the curriculum there will be an emphasis on coordination and integration of teaching, both between the various pre-clinical subjects and between the pre-clinical and the clinical subjects. Classes will, where possible, be kept to small groups, and teaching methods will place great reliance on group tutorial teaching both in the laboratories and at the bedside.

A. Pre-medical Year.

Pre-medical students will take the common first-year science course of the University in the compulsory subjects of Physics I, Chemistry I and Mathematics I and, together with other students in the Faculties of Science and Applied Science, will take General Biology as their fourth subject.

Students wishing to proceed directly to the degrees of bachelor of medicine and bachelor of surgery will, during this first year of attendance at the University, enrol provisionally in the medical course and, before being eligible to be considered for progression to the second year, must have passed the examinations in the subjects

[1] *Cent. Afr. J. Med.*, 1959, Vol. 5, No. 3; Supplement.

of the pre-medical course. The performance of students who have completed the first year or equivalent will be reviewed by a committee of the Faculty of Medicine, which will determine those students who are eligible to confirm their enrolment in the faculty and so proceed to the second year of the medical course. These means will ensure that the facilities available in both the pre-clinical and clinical schools will not be overloaded.

B. The Pre-clinical and Clinical Years.

After enrolment in the second year, students will receive full-time professional instruction in the subjects of the pre-clinical and clinical courses, and the Faculty of Arts will also provide courses of instruction in the humanities and social sciences. This is in conformity with the accepted pattern of the University of New South Wales that, in the scientific faculties, each year beyond the first year should include some 60 hours of instruction in either the humanities (English, history or philosophy) or the social sciences (e.g., sociology, psychology, economics, political science).

The arguments for the inclusion of a general educational programme in the medical course are cogent. The case rests not only on the liberal educational values the arts subjects enshrine. Increasingly the social sciences are coming to have a direct meaning and reference to the practice of medicine.

Subjects of the Pre-clinical (Second and Third) Years.

The pre-clinical course will comprise two years (six terms) of instruction, the first term of each year being of 12 weeks' duration and the remaining four terms being each of 10 weeks' duration.

During the first five terms courses will be provided in anatomy, physiology and biochemistry. The rapid growth in knowledge of medical "function" as opposed to "form" necessitates a corresponding shift of emphasis in teaching. Relatively more time will therefore be devoted to physiology and biochemistry, and to the functional aspects of anatomy, than has been traditional in undegraduate teaching, and courses of instruction will be coordinated as closely as possible.

In the sixth and final term of the pre-clinical course instruction will be commenced in pharmacology, microbiology and pathology, and the teaching of these subjects will be continued into the clinical part of the course. This term will thus be used as a bridge between the clinical and pre-clinical subjects. During the clinical years, further integration between clinical and pre-clinical studies will help the student to retain his knowledge of the basic medical sciences and will do much to prune redundancies in teaching.

Clinical Years (Fourth, Fifth and Sixth Years).

There will be courses of instruction, and examinations, in general medicine and surgery, obstetrics and gynæcology, pædiatrics, psychiatry, pathology, social and preventive medicine, forensic medicine and the legal and ethical obligations of registered medical practitioners.

These subjects will be taught (almost exclusively) in the clinical schools of the University. Reliance will be placed chiefly on bedside teaching and tutorials. Active student participation will be ensured by arranging that all serve as clinical clerks for a period of some two years. The approach to teaching in the clinical subjects may be illustrated by reference to general medicine.

There will be an introductory course in history-taking and physical diagnosis, after which students will begin clinical clerking. In the second and third years of their clinical course students will form, as far as possible, an integral part of the various medical units. Through participation in the daily activities of the wards they will be constantly exposed to the educational influence of the resident, full-time and honorary staff, who will supervise their activities.

Clinical clerking will be supplemented by lectures, seminars and conferences throughout the course. Particular emphasis will be placed on the clinical application of the more basic disciplines—anatomy, physiology, biochemistry and pathology. Where possible disease will be studied in a multi-disciplinary way, rather than in fragments in different departments.

A course in clinical laboratory medicine will strengthen the bonds between clinical pathology and clinical practice and will enable students to use laboratory techniques themselves in the study of their own patients.

There will be a continued emphasis on the use of the scientific method in the clinical field, particularly in therapeutics. Students will be encouraged to participate, if only in a small way, in the experimental work of the department and so acquire some understanding of the methods and fruits of clinical research.

Psychosomatic medicine and dermatology, which form a considerable part of the daily work of practising doctors, will also be given due weight in medical teaching.

Although it will be necessary for the student to acquire a great deal of factual knowledge in the study of internal medicine, the importance of principles and mechanisms of disease will be held constantly in mind. A course in internal medicine can do no more than lay the foundation for continued self-education in the post-graduate period.

A feature of the Prince Henry Hospital, new in Australia, is that clinical professors of the medical school will be heads of the corresponding services in the teaching hospitals. Also, as men of sufficient merit become available, they will be appointed full-time heads of the various sub-departments. Large part-time (honorary) staffs will also be appointed in the various clinical departments.

A large part-time (honorary) staff can make available for student teaching a broad range of informed opinion. The individual specialists, by virtue of their work, bring distinction to the University's hospitals. Broad and frequent contact with visiting staff also prevents the development of insular attitudes on the part of full-time staff.

In turn, a good admixture of full-time staff is essential if laboratory medicine as well as clinical medicine and surgery is to keep pace with teaching and research developments overseas. As heads of the services the role of the clinical professors will, in essence, be that of coordinating work at clinical level. As chairmen of the various departments they will help and strengthen the honorary system.

There will be instituted, in the teaching hospitals, planned graduate training programmes in medicine, surgery and the other specialties. The young graduate will, for example, be able to apply for a residency training programme in surgery. If accepted, he will enter a course extending over several years, in which he will learn, if he satisfies the requirements for promotion, to master the established techniques of major general surgery.

In the two general teaching hospitals it is proposed that there will be provision for all categories of sick people: (i) the acutely physically ill; (ii) the mentally ill; (iii) those with long-term illnesses, including the aged sick; (iv) hostel-type patients with social problems necessitating institutional care. In the past, patients in categories (ii), (iii) and (iv) have usually been segregated in institutions widely separated from the main teaching hospitals. The latter have largely confined their work to short-term physically ill patients. The new arrangement in the teaching hospitals of the University of New South Wales will ensure that students, faculty members and research workers will be confronted with the whole task of medicine. The acceptance of patients in categories (ii), (iii) and (iv), with their heavy dependence on rehabilitation services and continuing after-care, will weave the activities of the clinical schools into those of the social and health services in the community outside.

Out of the Past.

ON THE CULTIVATION AND EXERCISE OF COMMON SENSE.[1]

[From the *Australasian Medical Gazette*, July 21, 1902.]

I REGARD the possession of what is called common sense as pre-eminently one of the best helps to success in practice. Its value cannot be over-estimated. Its saving grace will help you to avoid needless enemies, to manage your practice and your business affairs with discretion, and, above all, to make a sane, evenly balanced judgement on the diagnosis and treatment of your cases. Many men make shipwreck for the lack of this possession.

In Johnson's "Lives of the Poets" there is a short memoir on Mark Aikenside, a man whose story always seems to me an object lesson on the matter of common sense. Aikenside was a member of our profession, and was on the staff of a London hospital. He was sufficiently versatile to have written the "Pleasures of the Imagination" and a treatise, "On the Growth of the Fœtus". The merits of the former performance were sufficiently prominent to give him the posthumous glory of a place in that roll-call of talent which Johnson's "Lives" perpetuates. What Samuel Johnson wrote of successful practice 150 years ago is still true in not a few instances. Listen to what he says: "A physician in a great city seems to be the mere plaything of fortune; his degree of reputation is for the most part totally casual. They that employ him know not his excellence. They that respect him know not his deficience." Aikenside, however, in many ways does not appear to have been wanting to his own success. He placed himself in view by all the common methods. He obtained a Cambridge degree, and was admitted to the College of Physicians. He wrote little poetry, but published from time to time medical essays and observations. He delivered the Croonian lecture and became physician to St. Thomas' Hospital. All these things he did, gentlemen, and more; "for in conversation he forced himself into notoriety by an ambitious ostentation of elegance and literature". From all I can learn concerning his life I gather that he never attained distinguished success in his profession; and his failure to do so, in spite of his undoubted talents, I attribute to a lack of common sense: a want of the just perception of the fitness and due proportion of common things. This is evidenced by his total inability to succeed in Northampton, which town "he deafened with clamours for liberty"; and later on, London, where he made himself notorious by "his outrageous and unnecessary zeal" for the same kind of freedom. We well know in these later days that such bellowings for liberty mean for the most part a desire for license, "for innovation and anarchy, with but little care for what shall be established". I have digressed over this man's career that I might emphasize from the lesson of his life the deep importance of common sense; and further, I think that if you possess a talent or a knowledge outside your profession, you had, perhaps, better hide it from the notice of the public, at least till you are independent of its favours. For look you, gentleman, Medicine is a mistress whom the public consider must be served with no divided affection. The medical man must be essentially to the general public the man of medicine, and nothing more—at least, I repeat, in the earlier part of his career.

From "On Aims and Means in Medicine" by R. Scot Skirving.

[1] From the original in the Mitchell Library, Sydney.

Obituary.

SAMUEL ROY BURSTON.

WE are indebted to SIR WILLIAM JOHNSTON for the following account of the career of the late Sir Samuel Roy Burston.

Few have rendered such long and honourable service to the Royal Australian Army Medical Corps as the late Major-General Sir Samuel Burston, and it is unlikely that in the future his record will be equalled. He had been destined for a military career, but while still attending the Melbourne Church of England Grammar School was found to have a heart murmur, which in those days was regarded as diagnostic of severe disease. He was kept at rest for some time, and meanwhile all thought of the Army as a permanent career was abandoned. In the ultimate he gave to each of two professions almost as much as the average man would give to one. Medicine was certainly the gainer by this chance decree of fortune; he attained high distinction in this field, as honorary physician to the Royal Adelaide Hospital and as a Fellow of the three Royal Colleges of Physicians—London, Edinburgh and Australasia, a rare distinction.

Baulked of his full-time military career, he nevertheless determined to participate as far as possible in Army activities, and soon after commencing practice in Adelaide was appointed medical officer to the 79th Infantry Battalion with the rank of Captain A.A.M.C. When the first World War broke out, he was thus prepared by training and inclination for active service. He enlisted soon after the declaration of war, and embarked from Australia as Major in the 4th Light Horse Field Ambulance. He served for several months on Gallipoli, until he contracted dysentery and enteric fever in November, 1915. It is worthy of note that his father, Brigadier-General James Burston, commanding the 7th Infantry Brigade, was serving on Gallipoli at the same time—indeed, it is said that he passed through the hands of his son in the course of his medical evacuation from the Peninsula. Subsequently Burston's service in France was of an extremely high order. Attached to the 11th Field Ambulance, he was in charge of an advanced dressing station at the battle of Messines, and for his work here was mentioned in dispatches and awarded the D.S.O. on January 1, 1918. In the administration field his ability was also recognized, and led to his appointment as commanding officer of the 1st Convalescent Dépôt at Le Havre in April, 1918, and in November of that year as Commanding Officer of the 3rd Australian General Hospital. In April he acted as Assistant Director of Medical Services A.I.F. Dépôts in the United Kingdom, with the rank of colonel.

On his return to Australia, he resumed medical practice in Adelaide, but retained close association with the Army. From 1920 till 1939 he was in control of the A.A.M.C. in South Australia as D.D.M.S., 4th Military District. It is believed that the late Major-General Sir Neville Howse had formed so high an opinion of Burston's capabilities that on retirement from the position of Director-General of Medical Services, Commonwealth Military Forces, to enter politics, Sir Neville endeavoured to persuade him to apply for that post; but by this time Burston was immersed in a large medical practice and decided against it.

In the years between the two World Wars he undertook peace-time training seriously. He always took an active part in the tactical exercises that were staged at intervals in order to give some degree of realism to training. It was noticeable that on these occasions he showed an unusually clear conception and grasp of the principles and problems involved. The interest and ability thus displayed during this period undoubtedly influenced Major-General Rupert Downes (appointed D.G.M.S. some years prior to the outbreak of the second World War) in his decision to allot to Burston the chief medical post in the event of an Australian force being ordered abroad—a decision subsequently well justified.

On the formation of the 2nd A.I.F., Burston was appointed A.D.M.S. of the Sixth Division, and in 1940 D.D.M.S. 1st Australian Corps, with the rank of brigadier. Thereafter, as the A.I.F. developed further strength and widening fields of action, his responsibilities increased, progressing from those of D.M.S., A.I.F. in 1940, to D.G.M.S., Allied Land Headquarters, South-West Pacific (1942-1945) with the rank of major-general. To have achieved this and to have remained for the whole period of the war on Sir Thomas Blamey's staff was convincing evidence of his capabilities, for the Commander-in-Chief was an exacting master.

John Hetherington, in his biography of Blamey, states that "Burston, his medical Chief, a tall scholarly South Australian, was an officer on whose honesty and calm judgment, Blamey quickly came to rely". Unquestionably these qualities were the essence of his character and the basis of his successful career in controlling the medical services of the 2nd A.I.F. It was his honesty of outlook that prompted him to meet as many of his medical officers as possible, so that he could learn to judge their capabilities; it led him to travel widely in his vast medical command, so that he could see for himself the conditions for which he had to issue directives and so gauge the efficacy of his instructions. It was his calmness that gave him an attitude

which seemed "easy going", but which was in reality the expression of an equable temperament that remained unruffled in the process of solving problems which, in the rapid transitions of the 1939-45 War, were often complicated and urgent. He believed in personal reconnaissance; he saw the first of the casualties being evacuated in the forward areas near Bardia in the early stages of the Libyan campaign; he visited the battle front in Greece and was subjected to a heavy bombing raid at Elasson; he was, as D.M.S., A.I.F., on General Wavell's staff in Java at the height of the Japanese thrust. He travelled extensively throughout Australia and the South-West Pacific; he undertook an overseas trip in 1945 embracing the United Kingdom, U.S.A., and the headquarters of Earl Mountbatten, at that time "Supremo" and Commander-in-Chief South-East Asia Command—a visit rendered all the more important because of the impact of the work of Brigadier Neil Hamilton Fairley in tropical diseases on the Burma Campaign.

The magnitude of his task may be judged by the numbers under his control and the immensity of the area involved. At one period he had under his command approximately 6000 officers of all branches of the medical service, including 2000 medical officers and 2000 nurses, the number of medical personnel amounting to 31,000. That this body was maintained in a high degree of efficiency and *esprit-de-corps* was chiefly due to his personal influence and wise direction. His genial manner and human outlook made contacts easy for him, ensuring close cooperation and, indeed, a real feeling of comradeship with confrères of other British Commonwealth and Allied forces. But with all the friendliness that was so characteristic of him, his attitude was always dignified; his appearance and bearing were those of a leader who commanded respect, so that although he was known to all his officers and to all his friends from school days as "Ginger", no one presumed to overstep the bounds of accepted Army custom. He chose his subordinates carefully, so that he gathered about him an excellent team. Having done so, he trusted them and let them have a free hand in their own sphere. He sought the appropriate advice, and having weighed the available evidence, he made up his mind and kept to his decision. The feelings of esteem and affection in which he was held by those under his command were expressed after his retirement by the presentation to him of his portrait painted by William Dargie. This was subscribed for by a large number of senior A.A.M.C. officers and given to him at the time of the Australasian Medical Congress (British Medical Association) in Perth in 1948, an occasion that was for him and for them a happy and memorable one.

After the cessation of hostilities, Sir Samuel Burston continued to serve at Army headquarters as D.G.M.S. during the demobilization period and for some time after, being placed on the retired list in January, 1948. But retirement in his case was a mere phrase, for he continued to lead a life filled with a wide variety of interests. Up till the time of his death he acted as honorary medical adviser to the Australian Red Cross Society; he had long been associated with the Order of St. John of Jerusalem, as Chief Commissioner St. John Ambulance Brigade, Australia, and thereafter as Receiver-General of the Priory of St. John in Australia, in which position he had succeeded the late Sir John Newman-Morris. He was created Knight of Grace of the Order in 1945. However, his activities by no means ceased here. Throughout life he had been a lover of sport and an active participant—he was a capable tennis and golf player; racing had an attraction for him, and latterly he had been an owner in a modest way. As chairman of the Moonee Valley Racing Club he not only assumed an important place in the racing world, but on numerous occasions acted as host to distinguished visitors passing through Melbourne with a gracious hospitality that left a lasting impression on them.

He was active in the business community as director of a number of mining companies and of the *Age* newspaper, and to the end he maintained a direct touch with professional work in his position as medical adviser to the National Mutual Life Association of Australia.

Many honours and distinctions came to him. He was appointed C.B.E. in 1919, and created a Knight in the Order of the British Empire in 1952. He was awarded the Volunteer Decoration for long and efficient army service. In 1927 the bronze medal of the Royal Humane Society of Australia was bestowed on him for saving the lives of two youths in Victor Harbour. He was appointed an honorary physician to King George VI in 1945, and in 1952 Honorary Colonel, R.A.A.M.C.—a matter to him of particular pride as crowning his army career.

It was in keeping with his character that his home life should be a happy one, and this it was to an eminent degree. He had married Miss Helen Cuiross of Adelaide soon after settling in practice, and then followed over 40 years of happy family life, with both sharing the same interests and enjoying the same recreations until Lady Burston's death. The family was unusually closely knit; the elder son, Samuel, is a pastoralist in the western district of Victoria; the younger son, Robin, is a physician on the honorary medical staff of the Queen Elizabeth Hospital in Adelaide; and the only daughter, Elizabeth, is married to Dr. Christopher Sangster of Adelaide.

There has passed from us one of whom the medical profession may well be proud; one who possessed to a high degree personality and ability; one who looked and proved himself a leader. His courage was in no way better shown than by the equanimity with which he faced his final illness. Despite his knowledge that the end might come at any time, he carried on with all his interests and lived a full life to the end. The crowded congregation in Christ Church, South Yarra, for the service at the military funeral accorded him was evidence of the exceptional number of his friends and of the high esteem in which he was held. It was a tribute of a depth rarely shown, and one that befitted a great and lovable man.

DR. E. V. KEOGH writes: The appointment of Samuel Burston as Director-General of Medical Services, Australian Military Forces, subsequent to the return of the 2nd A.I.F. from the Middle East, was made in the face of determined opposition from the supporters of other candidates. That Burston triumphantly justified the judgement of General Blamey, who insisted on his appointment, is now beyond dispute. It is fitting, at this time, to reaffirm Burston's stature, and to indicate some aspects of his personality which assured his success.

On his appointment as Director-General of Medical Services, Burston assembled at Army Headquarters a team of advisers of exceptional quality, most of whom were, in truth, superior to him in intellectual distinction and in civilian professional status. It is sufficient to recall the names of Fairley, MacCallum, Morrow, Turnbull, Hayden, Hailes, Littlejohn, Ford, Mackerras and Ratcliffe. Nevertheless, Burston was well equipped to lead such a team, no one of whom, it is safe to say, nourished the illusion that he was better fitted to be the chief. What were the

qualities which Burston possessed enabling him to fill his onerous post with high distinction?

The paramount duty of the Director-General of Medical Services in a war is to develop those medical policies which will best further its successful prosecution, and to induce the military commanders to implement his policies. Everything else becomes subservient to victory, and it was demonstrated conclusively in the second World War that victory between opposed ground forces, operating in tropical areas, went, other things being equal, to the side which could minimize casualties from disease. For this task Burston commenced with two invaluable assets. His principal medical adviser and close friend was Neil Hamilton Fairley, an outstanding figure in tropical medicine, and one fully seized with the necessity for effective control of communicable disease in a fighting army. His Commander-in-Chief was Sir Thomas Blamey, whose friendship and confidence he had gained in the Middle East. Burston was therefore in the favourable position of being able to obtain the best available advice, and to ensure its implementation.

As well as winning Blamey's trust and friendship in the Middle East, Burston had learned from his Commander one of the essentials of good administration. John Hetherington, in his biography of Blamey, relates:

> It was many months after the A.I.F. reached Palestine before Burston was sure of his status with Blamey. Then one day he had to lay before Blamey details of two complex medical projects—Blamey glanced casually at the papers and initialled each without asking a question. Burston expressed surprise at this ready acceptance of proposals of some magnitude. "How long have you been serving with me now, Ginger?" Blamey asked. Burston told him. "Well surely", said Blamey, "you know me better than that. You are my technical adviser on medical problems. You don't think I'd be stupid enough to join issue with you on your own ground, do you? I must assume that when you come to me with things like these you have given them every thought."

Having absorbed this lesson, Burston behaved similarly in dealing with his own technical consultants. He eschewed the error, common in less competent administrators, of canvassing the opinions of other experts in the same field, and then attempting to decide which of the many opinions to accept. Burston was completely loyal to his advisers; they in turn were loyal to him. And if it did happen, inevitably, that the accepted advice on occasion resulted in criticism of Burston, he took that on his own broad shoulders, seldom informing the officer concerned, and, if he did, only after the trouble had passed. Incidentally, Burston was as sparing of praise as of censure, treating the members of his staff as sensible men with work to do, and anxious only to get ahead with it.

In addition to his close friendship with Blamey and Fairley, Burston was *persona grata* with the senior officers in all branches of the Army, and with good reason. He had great personal charm, and, big man that he was, he looked like a soldier. He made friends easily, he readily obtained his friends' confidence, and he kept his friends because he respected their confidences. For this reason he was often used as an intermediary when personal difficulties arose between commanders. Such relationships were obviously of great advantage to him in promoting the acceptance of the policies of the medical directorate.

Burston was very much a man of the world, fond of parties, good food and wine. Simple and naive in some respects, he was nevertheless an impressive figure whose very human foibles served only to endear him to his staff, without lessening their respect. Although he frankly enjoyed the rank and privileges of his office, no one was less a martinet or more approachable. On many occasions I have observed him, in Australia and U.S.A., in conference with personages of local or world importance and renown. In such company Burston more than held his own, usually dominating the proceedings. He seemed in such surroundings to rely on his authority as the representative of the Australian Army or Government, being able to convey this impression without parade or offence.

Some doctors who served under Burston were inclined to attribute all his success to the efforts of his staff officers. They were wrong. No doubt success as Director-General of Medical Services in such a war is assured for one who can choose the right advisers, who can keep them contented, who can bear patiently with prima donnas, who is modest enough to accept good advice and wise enough to reject what is bad or impracticable, who is able to ensure that the advice accepted is developed into plans which are carried into effect, who is imperturbable in the face of difficulties and obstruction, who remains invariably good-humoured under the strain of a long war, and who can get on equally well with scientists and soldiers. But having found a man with these qualities, you have found a leader with the stuff of greatness. Such a man was Samuel Burston.

This is not the place to record the achievements of the Australian Army Medical Corps under Burston's direction, but mention must be made of two developments which have had an enduring influence on Australian medicine in the years since the war. The need for the solution of urgent problems during the war required the development of research on an unprecedented scale, most of which was undertaken in specially formed units of the A.A.M.C. Opportunities were thus provided for young doctors in the service to develop their capacities; among those who have since been leaders in research, teaching and administration may be mentioned R. R. Andrew, C. R. B. Blackburn, F. Fenner, J. Loewenthal, J. W. Perry, R. J. Walsh and I. J. Wood. Towards the end of the war, negotiations were initiated by the Army Medical Directorate with the Nuffield, Carnegie and Rockefeller Foundations, which resulted in the provision of a large number of fellowships to enable selected medical officers to study in Great Britain and the United States before resuming civilian practice. A list of those who were awarded these fellowships would include the majority of the leaders of the profession since the end of the war to the present time. Burston visited Great Britain and the U.S.A. during the negotiations with the foundations concerned, and his presence was a decisive factor in the favourable outcome.

An outstanding leader during time of war, a wise planner for the subsequent years, a man admired most by those who knew him best, Burston has indeed deserved well of his profession and his country. May his name be long remembered!

DR. J. B. JOSE writes: Samuel Roy Burston died on August 21, 1960. He was born in Melbourne in 1888, educated at Melbourne Grammar School, and graduated in medicine at the University of Melbourne in 1910. Soon after, he came to Adelaide to fill a senior resident position at the Adelaide Children's Hospital. In 1912 he went with an expedition to the Northern Territory as a medical officer of the Aborigines Protection Board. In 1913 he married in Adelaide, and took over the general practice of the late Dr. Drummond at Mile End, Adelaide. In 1914, he was appointed an honorary assistant physician at the Royal Adelaide Hospital. He was among the first to enlist in the A.I.F in 1914, in the A.A.M.C., and had a distinguished record of service in Egypt, Gallipoli and France. He was mentioned in dispatches, awarded the D.S.O. in 1918 and made a C.B.E. in 1919.

On his return to Australia, he continued to take an active part in the Australian Army Medical Services. He was D.D.M.S. of the 4th District Base in Adelaide from 1920 till, on the outbreak of the second World War, he was selected to lead the Australian Army Medical Corps of the A.I.F. overseas, and was made a C.B. in 1942. That he held this very responsible position for the whole of the war, and after the war became D.G.M.S. of the Australian Army Medical Corps, was a tremendous tribute to his ability in maintaining the excellence of the Australian medical service and in having the confidence of the general staff. He had the gift of getting men to do what he wanted, and the acumen to select suitable men for responsible positions. Between the wars he built up a large medical practice in Adelaide. He became a member of the College of Physicians of Edinburgh in 1933, and was elected to Fellowship in that College in 1937, and in The Royal Australasian College of Physicians in 1938. He became a Fellow of the Royal College of Physicians, London, in 1945. He was appointed honorary physician to the Royal Adelaide Hospital in 1933. He was much loved by his patients and his many friends for his personal interest, understanding kindness and attention. He had a happy zest for living and enjoyed the company of his fellows and participation in active sports.

In 1927 he was awarded the Royal Humane Society's bronze medal for the rescue of a youth caught in a rip while surfing. Recently he had been chairman of Moonee Valley Racing Club.

After the War, Burston did not return to the practice of medicine. He took an active part in providing rehabilitation training of young army medical officers for civilian life. He held responsible positions in the Order of St. John of Jerusalem, was made a Knight of Grace of this Order, and was Chief Commissioner for Australia of the St. John Ambulance Brigade from 1945 to 1957. He was

medical adviser for the Australian Red Cross Society and a member of the Nuffield Foundation Advisory Committee in Australia. He was appointed an honorary physician to King George VI, and was created K.B.E. by Her Majesty the Queen in 1952 for services to his country. He led a very full and active life among his fellow men, and will be remembered by a very large number of his friends.

BRIGADIER R. G. H. IRVING, C.B.E., writes: The Australian Army was fortunate that the man chosen to control its medical affairs in the second World War was of the calibre and experience of Samuel Roy Burston. Selected in 1939 to be Assistant Director of Medical Services of the 6th Australian Division, by the General Officer commanding the 2nd A.I.F., Major-General Thomas Blamey, General Burston successively mounted the steps of the medical ladder until he retired from office as Director-General of Medical Services in 1948. General Burston collected into the Australian Army Medical Corps the leaders of the Australian medical profession, who, guided by his foresight and experience, established a consistently high standard of medical care throughout the Australian Army. Men of all ranks have more for which to thank Major-General Sir Samuel Burston than they perhaps realize.

Correspondence.

A CASE OF MISTAKEN DIAGNOSIS.

SIR: All of us make mistakes in diagnosis. In the historic words of Hippocrates: "Experience is fallacious and judgement difficult."

The mistake in this instance illustrates the danger of accepting the seemingly obvious as the whole truth, and illustrates also the importance of trying to obtain a comprehensive case history.

Mr. A., aged 58 years, was referred to me by a doctor in a country town in New South Wales, on November 4, 1960.

On examination: (i) no central vision in either eye; (ii) bilateral subluxated lenses, as evidenced by tremulous iris in both eyes; (iii) small, pinpoint pupils, no reaction to light; (iv) tension by tonometer normal in both eyes; (v) perception and projection of light present in both eyes; (vi) projection of light obtained in all quadrants (upper, lower, temporal and nasal); (vii) thumb and index finger of left hand, almost black from nicotine stains.

A diagnosis of glaucoma had been made in another State two and a half years ago, presumably because of the subluxated lenses. The patient remembered, and told me, that no rise in intraocular tension was found. In spite of this, the diagnosis of glaucoma was persisted in, and eserine was administered and prescribed. The patient, however, has not used eserine since his return to his country home from the other State; despite this, the pupils are still down to the extent of occlusio pupillæ. There is a history of gradually increasing loss of vision for some 20 years.

After prolonged conversation with the patient, I elicited a history of tobacco and alcohol intake, over many years. This history was not elicited in the other State. He states no alcohol for past two years.

Subluxation of a lens always carries with it the possibility of a secondary glaucoma, and that is why I think a diagnosis of glaucoma was made. This man has not got glaucoma, nor has he ever had glaucoma. He has tobacco-alcohol optic atrophy.

In glaucoma, the nasal fields are the first to go. In optic atrophy, there is a concentric contraction of the visual fields, and in tobacco-alcohol amblyopia, the central papillomacular bundle of the optic nerve is hit first, causing a loss of central red-green discrimination, and a progressive loss of central direct vision, with contracting fields.

The picture is now clear, but, unfortunately, the patient's vision is not.

In cases of dislocated lenses, whether congenital in origin, or from concussion injuries rupturing the zonule, the lens is usually displaced sideways, or upwards, or downwards. More rarely, the lens is dislocated forwards, either against the iris, or right into the anterior chamber, thereby blocking the drainage of aqueous into the trabecular space, thus causing a secondary glaucoma.

In this particular case, I would suggest that the persisting pin-point pupils are the result of the repeated instillation of eserine into non-glaucomatous eyes. As there was no glaucoma present, there was no impulse for the pupils to dilate upon the cessation of eserine instillations.

There is an all-important difference between subluxated, partially dislocated lenses, and luxated, totally dislocated lenses. In cases of partially dislocated lenses, the incidence of secondary glaucoma is a rarity; in cases of totally dislocated lenses, secondary glaucoma, while not inevitable, is much more likely to occur. It is not inevitable, because the dislocated lens may sink down into the vitreous, instead of being squashed forward against the back of the iris, or being actually extruded into the anterior chamber.

In the case under discussion, if, as I think, the correct diagnosis should have been tobacco-alcohol poisoning, massive doses of vitamin B_1 should have been administered, parenterally at first, and subsequently in the form of oral maintenance doses.

Tobacco and alcohol destroy vitamin B_1 which is essential for the nutrition of nerve tissue anywhere in the body, as is evidenced by the occurrence of peripheral neuritis in alcoholics. In the eye, however, tobacco is the more important of the two factors, alcohol being merely an accessory factor. I have seen cases of tobacco amblyopia in total abstainers from alcohol. In this connexion it is of interest to note that beer drinkers are more vulnerable than spirit drinkers; whether or not this may be due to the mild arsenical content of beer, I really do not know.

Some fifteen years ago, in recognition of the fact that nicotine is a selective poison for the central papillo-macular bundle of the optic nerve, a well-known American clinic collected some 150 cases of tobacco amblyopia; about half of this group were alcohol drinkers. They were given injections of vitamin B_1, and advised to discontinue smoking and drinking; most of them did nothing of the kind. They were also advised to report back to the clinic within three or four days; about one hundred of them did so; the other fifty were never heard of again.

To cut the tale short, most of those who reported back to the clinic had gone on smoking or drinking or both, and announced their intention of continuing to do so. Despite this, those who continued to report, and to smoke and drink, not only did not get any worse, but actually improved (except for a few who had reached an irreversible stage of optic artophy), provided that they kept on with an adequate oral maintenance dose of vitamin B_1. On average, the maintenance dose was 20 mg. daily.

It must be admitted, of course, that my conclusions in this case are partly conjectural; but it does seem to me, on the available evidence, to be a case of undiagnosed tobacco-alcohol optic atrophy.

Yours, etc.,

135 Macquarie Street, Sydney.
Undated.

ARTHUR D'OMBRAIN.

CONSCRIPTION OF MEDICAL OFFICERS.

SIR: Thank you for forwarding me a copy of a letter received by you written by "R.M.O." under the heading "Conscription of Medical Officers". This letter has been brought to the attention of the Commission, and I have been instructed to inform you that the Commission denies that there is any such "industrial conscription".

For your information, following the announcement of the results of the final degree examinations in medicine by the University of Sydney a meeting is held at which representatives of the University of Sydney and the teaching hospitals are present, and they allot the resident medical officers to these hospitals. Immediately following that meeting a further meeting is held of representatives of the British Medical Association (New South Wales Branch), the New South Wales Post-Graduate Committee in Medicine, and the Hospitals Commission of New South Wales. At this meeting the remaining successful medical students are allotted to the non-teaching hospitals.

This allocation is made according to the academic record of the students and the students' stated order of preference of hospitals in which they wish to serve, bearing in mind the relative needs of hospitals. This system of appointment is a fair and reasonable system, and any suggestion of "conscription" is groundless. This system has been in operation for a number of years, and has been the means of providing for orderly placement of resident medical

officers to the mutual satisfaction of the resident medical officers and the hospitals.

It should be remembered that this system came into operation purely in the interests of the medical officers themselves, at a time when many found it impracticable to secure a hospital appointment at all. It has the further advantage of all resident medical officers commencing on a common date, and avoids the delays that would attend a system where they would be required to apply direct to several hospitals with consequent loss of remuneration whilst awaiting a reply.

Yours, etc.,

J. G. LOVE,
Secretary.

The Hospitals Commission of N.S.W.,
86-88 George Street North,
Sydney.
January 19, 1961.

METRONIDAZOLE IN FEMALE TRICHOMONIASIS.

SIR: Following reports of the successful use overseas of metronidazole in the treatment of trichomonad infestation in women, it was decided to gauge its efficacy against local strains of *Trichomonas vaginalis*. Metronidazole is administered orally whereas the substances hitherto used with any success in this condition have been inserted into the vagina.

The trial was carried out on women patients under investigation for venereal disease. Among such patients trichomoniasis, either on its own or in association with gonorrhœa, is common. In the past their treatment with vaginal tablets containing either acetarsol or di-iodohydroxyquinoline has produced indifferent results, because many women found the intravaginal insertion of tablets difficult or distasteful and were unwilling to persist. Others again had difficulty because their living quarters lacked the necessary privacy for this type of treatment. Lack of success in others was related to prostitution, low intelligence or chronic alcoholism.

Thirty-nine patients were given a standard course of 21 (200 mg.) tablets, one three times a day for seven days. The diagnosis was established by examining a wet film from the posterior vaginal fornix by phase contrast microscopy. The initial reexamination was carried out 10 to 29 days after starting therapy. Thirty-two presented for reexamination. A few of these were reexamined again after a further period of time. Naturally enough, the longer the interval between cessation of treatment and the reexamination, the greater the likelihood of reinfection from further sexual intercourse. In 20 of the 32 gonorrhœa coexisted and was simultaneously treated with streptomycin and sulphathiazole. A further three were pregnant.

At the initial reexamination, the parasites had disappeared in all but two patients. One of these admitted further intercourse. In the other, two further courses of metronidazole had no effect on the trichomonads.

In the successful cases there was evidence of prompt subsidence of the inflammatory changes in the vaginal fluid and a return to a more normal bacterial flora. No patient complained of any untoward side effects.

The impression has been gained from this small series that metronidazole is a promising drug in the treatment of trichomoniasis in the human female, because of its ease of administration and the prompt way it causes the parasites to disappear from the vagina.

Thanks are due to Messrs. May and Baker for supplies of metronidazole ("Flagyl").

Yours, etc.,

W. BOLLIGER,

Department of Health,
Government Clinic,
136-138 Gertrude Street,
Fitzroy, Vic.
January 19, 1961.

CHILDREN IN HOSPITAL.

SIR: The important subject of accommodation for mothers of children in hospital, raised by Dr. M. C. Spencer in his letter (MED. J. AUST., December 10, 1960), is one which could have been included with advantage in the report of the Australian Pædiatric Association (MED. J. AUST., November 19, 1960). The report was kept brief, and detail was avoided deliberately, but a reference to this important matter would have improved it. The provision of accommodation for mothers of children in hospital applies particularly to the very young, and to country mothers whose opportunities for taking advantage of unrestricted visiting are limited by the distance and expense involved. As Dr. Spencer will know, the matter which he raises has engaged the sympathy of most practitioners whose main interest is in the care of children, and certain children's hospitals have made provision for mother-child units and hostels for mothers from the country. It would be unfortunate if an extension of this advance in child care was to be blocked for administrative or financial reasons. Dr. Spencer's comments certainly deserve consideration by the Australian Pædiatric Association.

Yours, etc.,

W. B. MACDONALD,
Honorary Secretary,
Australian Pædiatric Association.

Department of Child Health,
Princess Margaret Hospital for Children,
Perth, W.A.
January 20, 1961.

GIANT HÆMANGIOMA WITH THROMBOCYTOPENIA.

SIR: A recent paper "Giant Hæmangioma with Thrombocytopenia" by Dr. T. Y. Nelson[1] is a reminder to all of us to be on the lookout for this serious, but fortunately very rare, complication of vascular tumours.

In a letter of December 31, 1960, replying to Dr. Abbott,[2] Dr. Nelson[3] has suggested that I would be an advocate of early X-ray treatment in this syndrome. With this statement I cannot entirely agree, as, for the purpose of therapy, I have always divided hæmangiomata into three main groups: first, capillary hæmangiomata, which are almost always radio-resistant and therefore should either be left alone or treated by surgery; second, superficial cavernous hæmangiomata (strawberry mark), which, if treated expectantly, usually undergo resolution; third, deep cavernous hæmangiomata, single or multiple, large or small, which, as a general rule, are highly radio-sensitive and respond well to treatment with very small divided doses of superficial X rays. The treatment is painless and requires neither anæsthesia nor hospitalization.

A review of 19 cases from the literature by Wilson and Haggard[4] has shown that thrombocytopenia is found not only in association with hæmangiomata, both capillary and cavernous, but also with malignant tumours such as endotheliomata. Dr. Nelson's own series of cases shows a similar wide variation of type. Therefore treatment must vary with the nature of the vascular tumour precipitating the syndrome.

I would agree with Dr. Nelson that there is no place for expectant treatment in large subcutaneous hæmangiomata, which, I believe, should receive active therapy as soon as possible to avoid the risk of rapid growth, necrosis, painful ulceration and scarring so common with these lesions, but would support Dr. Abbott in his contention that surgery as a prophylaxis for so rare a condition as associated thrombocytopenia is unwarranted. Surgery should, in my opinion, be reserved for those cases which have failed to respond to superficial radiation, or for those cases which are found to be malignant.

Yours, etc.,

HENRY SHARP.

175 Macquarie Street,
Sydney.
January 19, 1961.

SIR: I have read with interest and considerable concern the case reports by Dr. T. Y. Nelson on "Giant Hæmangioma with Thrombocytopenia" and the comment by Dr. Abbott.

I would like to draw attention to a baby who was seen at the Princess Margaret Hospital in Perth in February, 1959. This baby was born with a large hæmangioma of the

[1] MED. J. AUST., 1960, 2: 815.
[2] MED. J. AUST., 1960, 2: 956.
[3] MED. J. AUST., 1960, 2: 1046.
[4] *A.M.A. Arch. Derm.*, 1960, 81: 432.

left arm and forearm. This increased rapidly in size in the first few weeks, and at two months the left arm was about three times the size of the right arm, and the hæmangioma extended from the upper third of the arm to one inch above the wrist. The hand was œdematous and there was a loud systolic murmur over the tumour. The platelet count was 33,000 and the hæmoglobin 10 grammes *per centum*.

After considerable discussion, it was decided to adopt conservative measures and leave the arm alone. There was gradual resolution of the tumour over the next few months, and when he was seen at 12 months of age it had almost completely disappeared. There was only some residual thickening of the skin at the site of the previous growth. The two arms were of equal size, and the function was normal.

This case has convinced me, and others who witnessed this transformation, that conservative treatment should be adopted wherever possible.

Yours, etc.,

205 St. George's Terrace,
Perth,
Western Australia.
January 14, 1961.

I. S. WALLMAN.

QUADRUPLE ANTIGEN.

SIR: The heralded issue of quadruple antigen by the Federal Government raises two main problems.

The first is that of the intended way in which the serum is to be issued. It is well known that the distribution of Salk vaccine has not functioned as well as it should; because of the apathy of local municipal and shire councils the material is not available to all general practitioners and their patients. We may assume that the uncooperative councils will remain uncooperative, and that the distribution of quadruple antigen will be no more universal than that of the Salk vaccine.

The second problem, and the major one, is the question of the desirability of using quadruple antigen at all. A recent article by Gaisford, Feldman and Perkins[1] summarized in the "Year Book of Pediatrics"[2] states: "It is unlikely that combined polio-DTP would give protective levels against poliomyelitis if begun before age 6 months, by which time pertussis immunization should have been completed. The authors advise using triple antigen as already recommended, followed by poliomyelitis vaccine separately in the second half of the first year, despite the increased number of injections required."

The above statement, if correct, is of grave importance, and I consider that before the general practitioner should be expected to use the quadruple antigen opinion from the most authoritative and reliable sources should be made available and given widespread publicity urgently.

Yours, etc.,

789 Forest Road,
Peakhurst,
New South Wales.
January 20, 1961.

A. J. McKELLAR STEWART.

ANAPHYLACTIC SHOCK AND SUBSEQUENT DEMENTIA FOLLOWING THE ADMINISTRATION OF TIGER-SNAKE ANTIVENENE.

SIR: Dr. H. S. Symons' report (MED. J. AUST., December 24, 1960, p. 1010) of profound anaphylactic shock and subsequent psychological disturbance following the administration of tiger-snake antivenene was of great interest and well illustrates the occasional hazards which may be associated with intravenous therapy. However, I wonder if the marked psychological changes from which the patient made a "gradual recovery" should be termed "dementia". The currently accepted[3,4] psychiatric definition of dementia implies an irreversible deterioration of intellectual function based on organic brain change, and all three elements should be present.

The interesting sequence of psychological disturbance associated with hypotensive cerebral hypoxia—disturbance of consciousness (anoxic coma or delirium), of memory and orientation (dysmnesic or amnestic syndrome) and finally residual disturbance of mood and behaviour (personality disorder) or of intellectual function (dementia) was also well illustrated by a patient recently encountered.

> A 62-year-old woman with a history of psychiatric illness made a determined suicidal attempt by cutting her wrists. During suture of the median nerve under anæsthetic her heart stopped, and in spite of immediate cardiac massage it was some 30 minutes before an adequate blood pressure was restored.
>
> Ten days later she still showed gross disturbance of consciousness; lay mute and inactive, responding only crudely to stimuli (withdrawing from pain, repeating her name if shouted, etc.). However, with repeated stimuli she soon ceased to respond unless the intensity of the stimulus was progressively increased. This possibly suggested a failure of normal arousal—perhaps the result of hypoxia on the cells of the activating systems. Consciousness gradually returned over a fortnight.
>
> Four weeks later she showed a marked dysmnesic (Korsakow-like) syndrome with gross memory deficit, disorientation and some confabulatory euphoria.
>
> Four months after the incident she has made a remarkable recovery, manages the household, does the shopping, etc., although there is some minimal impairment of intellectual function on testing.

Of course, the various components, impaired consciousness, dysmnesia, residual personality disorder or dementia, will show differing patterns with or without specific cortical dysfunctions (dysphasia, dyspraxia, etc.) in different patients, and regressive sequences may be apparent.

However, should not the term dementia be reserved for that residual and irreversible deficit of intellectual function which is often surprisingly slight in these cases?

Yours, etc.,

Perth,
Western Australia.
January 12, 1961.

I. PIERCE JAMES.

DEEP CORNEAL WOUND FORM LAMBERTIA FORMOSA (MOUNTAIN DEVIL).

SIR: *Lambertia formosa*, the botanical name for the honey tree or Port Jackson honey-flower, a shrub which grows to a height of from five to six feet, bursts into red blossom in springtime. Lambertia is indigenous to Australia; a Western Australian species of lambertia is known there as honeysuckle, because of the rich content of nectar in its springtime flowers. The bright-red clusters of tubular flowers, surrounded by a palisade of yellowish-green bracts, are most striking to the eye, as are also the peculiar horned woody seed-pods of the plant, which have given rise to the local New South Wales name of mountain devil. The bracts, narrow, fusiform-shaped leaves, growing up and out from the stem or axis of the plant, are striking to the eye in a rather less poetic way, for, growing out from the upper extremity of each oval pointed bract, is a needle-sharp, fine spine, about 1·5 mm. in length.

On Saturday, December 5, 1959, Miss A., aged 26, was walking through dense scrub outside of Beecroft, New South Wales, when she was struck in the left eye by a shrub; she was thoughtful enough to break off a bunch of the shrub which she had walked into, and to bring the specimen in to me on Monday, December 7. On examination, the left eye showed intense ciliary injection; the eye was extremely painful. Fluorescein instillation revealed a stain near the centre of the cornea, and the slit-lamp microscope revealed a slanting track through the whole thickness of the cornea. In the posterior third of the track was the thorn or spine. Atropine and "Metimyd" ointments were inserted, and treatment was continued on December 8, 9 and 10, by which time the eye was practically free from inflammation.

On December 11, Sir Norman Gregg kindly saw the case for me, and told me by telephone that he could see the track through the cornea, but no thorn.

The last time that I saw the patient, was on Wednesday, February 17, 1960, when the track of the spine was still visible. There was no loss of vision.

I am indebted to Mr. P. J. Hurley ("Waratah"), who identified the specimen for me, and also to Mr. Johnson,

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[1] *J. Pædiat.*, 1960, 56: 319 (March).

[2] "Year Book of Pediatrics", 1960-1961, 83.

[3] "Clinical Psychiatry", 1954, Cassell, London: 395.

[4] "American Handbook of Psychiatry", 1959, Basic Books, New York: 1145.

of the staff of the Herbarium of the Sydney Botanical Gardens, for additional botanical details.

Yours, etc.

135 Macquarie Street, Sydney.
Undated.

ARTHUR D'OMBRAIN.

CALLING ALL SEPTUAGENARIANS.

SIR: I am calling all septuagenarians. Of course, octo's and nona's may listen.

By-Law 4c of the memorandum of fees due for membership of the N.S.W. Branch of the B.M.A. rules that the annual subscription for members over seventy years of age has been reduced since September, 1956, from 13 to 4 guineas. My apprehension is lest some of you may not have noticed this merciful provision for the benefit of the aged. I for one became cognizant of the proviso only this year. This means *de facto* that I have paid 36 guineas to the Association beyond my just dues.

Nefas dictu! No redress exists. For a codicil to By-Law 4 foresaw such a happening as mine. It provides that any failure to claim the reduction at the exact moment of the seventieth birthday acts to the benefit of the Association and to the detriment of the incautious member. Whether such a condition is strictly ethical or not I leave to your judgement, albeit it is not my intention herein to pose a subject for a moral problem. My sole intention is to advise such as are happily about to reach the allotted span that they inform *statim* the Medical Secretary of the advent of this felicitous occasion. Otherwise they will be making a yearly bequest to the Association of 9 guineas per member.

Yours, etc.,

"Otaki",
Marrickville,
New South Wales.
January 21, 1961.

L. J. SHORTLAND.

Notes and News.

Kwashiorkor Epidemic in Kasai.

An epidemic of kwashiorkor, a nutrition deficiency disease affecting very young children, has been reported from the Kasai by W.H.O. nutritionist Dr. F. W. Lowenstein, who was sent there in December by W.H.O.'s Director-General, Dr. M. G. Candau, to report on health aspects of the famine situation. According to Dr. Lowenstein this is a most serious health problem calling for experienced medical care and treatment as well as adequate food. Three other W.H.O. doctors have now been sent to reinforce the action begun by Dr. Lowenstein in Bakwanga, Kasai. They are Dr. D. M. Blankhart, nutritionist, Dr. E. M. Poulton, pædiatrician, and Dr. Jacques Delcos, who is one of the doctors specially recruited by W.H.O. for service with the Congo government. As well as fighting the kwashiorkor epidemic, they are cooperating with F.A.O. and U.N.I.C.E.F. in their anti-famine action and advising on health matters connected with the emergency. W.H.O. doctors are also fully participating in the working group in Leopoldville set up by United Nations Organization in the Congo (U.N.O.C.) to plan famine relief.

The University of New South Wales: Foundation Scholarships in Medicine 1961-1966.

Many of the leading drug companies in Australia have agreed to establish Foundation Scholarships for students of medicine in the University of New South Wales.

The Council of the University is also providing a number of similar Foundation Scholarships in medicine. Their purpose is to ensure that no gifted student will be denied the opportunity of undertaking the course because of its length and economic considerations. It is envisaged that only those who already hold Commonwealth Scholarships will become Foundation Scholars in medicine. In general, the Foundation Scholarships will have a value of £200 *per annum* payable throughout the six-year course. For outstanding country students free residence in Basser College will also be provided.

Applications for the Foundation Scholarships on forms obtainable from the Registrar, University of New South Wales, Box 1, P.O., Kensington, N.S.W., must be lodged by February 28, 1961, with the Registrar, from whom further particulars may be obtained.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that the following courses will be conducted in Sydney in March, 1961.

Week-End Course in Neurology.

A week-end course in neurology, suitable for general practitioners, will be conducted at the Royal North Shore Hospital on March 11 and 12, under the supervision of Dr. George Selby. A detailed programme will be announced at a later date. The fee for attendance will be £3 3s.

Week-End Course in Electrocardiography.

A week-end course in electrocardiography will be conducted in the Maitland Lecture Hall, Sydney Hospital, on March 18 and 19, under the supervision of Dr. G. E. Bauer. The programme will be as follows:

Saturday, March 18: 10 a.m., "Differential Diagnosis of the Normal Electrocardiogram", Dr. R. G. Epps; 10.45 a.m., "Bundle Branch Block—Diagnosis and Prognosis", Dr. G. E. Bauer; 11.45 a.m., panel discussion—"Arrhythmias", Dr. Z. Freeman, Dr. R. G. Lewis and Dr. J. G. Richards; 2 p.m., symposium on "Electrocardiography in Ischæmic Heart Disease", Dr. G. V. Hall, Dr. John Raftos and Dr. Douglas Stuckey; 3.45 p.m., practical session in electrocardiography.

Sunday, March 19: 10 a.m., "Electrocardiographic Changes due to Drugs, Electrolytes, etc.", Dr. J. B. Hickie; 10.45 a.m., "Electrocardiogram in Valvular and Hypertensive Heart Disease", Dr. W. A. Seldon; 11.45 a.m., electrocardiographic quiz session—Dr. G. E. Bauer, Dr. J. B. Hickie, Dr. W. A. Seldon and Dr. Douglas Stuckey.

The fee for attendance will be £3 3s.

Courses for Part I, D.D.R., and Part I, D.T.R.

Courses for the Part I examinations of the diploma in diagnostic radiology and the diploma in therapeutic radiology will begin in Sydney on Monday, March 13. The fee for attendance at each of these courses will be 50 guineas.

Method of Enrolment.

Those wishing to enrol in any of the above-mentioned courses should make early written application, enclosing remittance, to the Course Secretary, The Post-Graduate Committee in Medicine, Herford House, 188 Oxford Street, Paddington. Telephone: 31 0671. Telegraphic address: "Postgrad Sydney".

SEMINARS AT SYDNEY HOSPITAL.

SEMINARS will be held in the Maitland Lecture Hall, Sydney Hospital, on Wednesdays, from 2 to 3 p.m. The seminars will be preceded by medical grand rounds at 12 noon and a pathological demonstration at 1.30 p.m. The programme for March and April, 1961, is as follows: March 1, "Radiology of the Biliary Tract", Dr. H. B. L. Williams (Gastro-Enterology Clinic); March 8, "Malignant Disease", Professor Wilfrid Gaisford, Professor of Child Health and Pædiatrics, University of Manchester; March 15, "Is There a Heart Hormone?" Professor R. H. Thorp (Endocrine Clinic, by invitation); March 22, "Benign Paroxysmal Vertigo of Childhood", Dr. L. S. Basser (Neurology Clinic); March 29, "Bronchial Carcinoma", Dr. M. R. Joseph (Royal Prince Alfred Hospital); April 5, "Reversible Renal Insufficiency", Dr. D. Jeremy (Clinical Research Unit); April 12, "The Circulation in Anoxia", Professor Paul Korner (Professor of Physiology, University of N.S.W.); April 19, "Presentation, Investigation and Treatment of Lymphomata", Dr. P. Francis, Dr. C. Hambly

(Hæmatology Clinic); April 26, Dr. E. G. L. Bywaters (Honorary Director, Rheumatism and Research Unit, Canadian Red Cross Memorial Hospital, Taplow, London; Professor of Rheumatology, Post-Graduate Medical School, London).

Australian Medical Board Proceedings.

NEW SOUTH WALES.

THE following additions and amendments have been made to the Register of Medical Practitioners for New South Wales, in accordance with the provisions of the *Medical Practitioners Act*, 1938 (as amended).

Registered medical practitioners who have complied with the requirements of Section 17 (3) and are registered under Section 17 (1) (*a*) of the Act: Diamond, Clifford Thomas, M.B., B.S., 1952 (Univ. Queensland); Macdonald, Donald, M.B., Ch.B., 1958 (Univ. New Zealand); Noble, David Alexander, M.B., B.S., 1957 (Univ. Queensland); Trist, Alan Robert Jnr., M.B., B.S., 1951 (Univ. Queensland), F.R.C.S. (Edinburgh), 1956, F.R.C.S. (England), 1957, M.R.C.O.G., 1960; Williams, Murray Gowan, M.B., B.S., 1951 (Univ. Queensland); Howell, Euan Richard, M.B., B.S., 1959 (Univ. Melbourne).

Registered medical practitioners who have complied with the requirements of Section 17 (3) and are registered under Section 17 (1) (*b*) of the Act: Hay, Ian Kennedy, M.B., Ch.B., 1941 (Univ. Aberdeen), D.P.H. (London), 1953, D.T.M. & H. (Edinburgh), 1951; Ingham, Donald Charles, M.B., Ch.B., 1956 (Univ. Edinburgh); McCall, Rhonda Grace, M.B., Ch.B., 1946 (Univ. St. Andrews), D.A., R.C.S. (England), 1956; McCall, Thomas Ramsay, M.B., Ch.B., 1958 (Univ. Edinburgh); Mulholland, Robert Charles, M.B., B.S., 1957 (Univ. London); O'Neill, Patrick James Justin, M.R.C.S. (England), L.R.C.P. (London), 1954; Stephenson, John, M.R.C.S. (England), L.R.C.P. (London), 1947, M.B., B.S., 1951 (Univ. London); Zion, Monty, Mordecai, M.B., B.Ch., 1947 (Univ. Witwatersrand), M.R.C.P. (London), 1954, M.D., 1958 (Univ. Witwatersrand).

The following has been issued with a licence under Section 21c (3) of the Act: Foscolos, Paul, from December 12, 1960, to November 21, 1961.

Registered medical practitioner who has complied with the requirements of Section 17 (3) and is registered under Section 17 (1) (*f*) of the Act: Pechy, Joseph Edward, M.D., 1933 (Univ. Debrecen).

Registered medical practitioner who has to comply with the requirements of Section 17(3) of the Act: Mitchell, Raymond Frederick, M.B., B.S., 1960 (Univ. Sydney).

Registered medical practitioners who have been issued with a licence under Section 21c(4) of the Act: Abrahamowski, Zeno, for one year from January 5, 1961; Kowalski, Ignacy, from November 22, 1960, to July 5, 1961; Shehovich, Bohdan, for one year from December 15, 1960.

The following has been issued with a licence under Section 21B of the Act: Barkus, Valentine, one year from January 7, 1961.

University Intelligence.

UNIVERSITY OF SYDNEY.

Conferring of Degrees in Medicine.

THE Chancellor of the University of Sydney, Sir Charles Bickerton Blackburn, was the speaker at the Ceremony of Conferring of Degrees in the University Great Hall on Wednesday, January 25, at 3 p.m. At this ceremony, the first for 1961, 252 degrees were conferred; 166 persons received the degrees of bachelor of medicine and bachelor of surgery, seven with first-class honours and 23 with second-class honours.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED DECEMBER 31, 1960.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.[2]	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.[2]
Acute Rheumatism	..	1(1)	1	..	..	..	..	..	2
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	..	..	..	..	..	..	..	..	..
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	4(4)	..	..	..	..	1(1)	..	..	5
Diphtheria	..	..	..	..	..	..	..	..	..
Dysentery (Bacillary)	1(1)	..	..	..	..	..	1	..	2
Encephalitis	..	..	..	..	..	..	..	..	..
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	1	..	..	1
Infective Hepatitis	57(11)	34(23)	10(1)	..	8(6)	1(1)	2	..	112
Lead Poisoning	..	..	1(1)	..	..	..	..	..	1
Leprosy	..	..	..	..	..	..	..	..	..
Leptospirosis	..	1(1)	..	..	..	..	..	..	1
Malaria	..	1(1)	..	..	..	..	..	..	2
Meningococcal Infection	1	..	..	..	1	..	..	..	1
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	1	..	1	..	1	..	..	..	3
Puerperal Fever	..	..	..	..	..	..	..	..	..
Rubella	..	6(4)	..	..	9(7)	..	..	..	15
Salmonella Infection	..	..	..	..	1(1)	..	..	..	1
Scarlet Fever	1(1)	8(4)	2(1)	..	..	..	..	..	11
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	1(1)	..	..	..	..	..	..	1
Trachoma	..	..	..	..	1	..	..	..	1
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	13(11)	11(9)	3	..	5(4)	2(1)	..	1	35
Typhoid Fever	..	..	..	..	..	..	..	..	..
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

[2] Figures incomplete owing to absence of return from South Australia.

The top medical graduate was Mr. Edmond Hon-Chuen Tai, a Malayan student born in Hong Kong, who received First-Class Honours and the University Medal, the Arthur Edward Mills Graduation Prize for distinction over the whole medical course, the Robert Scot Skirving Memorial Prize in Medicine and Surgery, the Allen and Hanburys (A/asia) Ltd. Prize in Surgery, the Hinder Memorial Prize for Clinical Surgery, and the William Henry and Eliza Alice Sharp Prize for Clinical Surgery. Mr. David Brender graduated in medicine with First-Class Honours, the Mable Elizabeth Leaver Memorial Prize in Obstetrics, and the George Allan Prize for Therapeutics.

Miss Margaret Anne Menser received the highest pass among the women candidates in medicine and received the Dagmar Berne Prize for proficiency amongst women candidates at the final year examination. Another woman prize winner was Miss Marcia Jean Brotchie, who received the Dame Constance D'Arcy Memorial Prize for proficiency amongst women candidates in gynæcology.

Medical Appointments.

THE following appointments have been made to the Honorary Medical Staff of the Royal Alexandra Hospital for Children, Sydney:

Dr. T. H. O'Donnell has been appointed Honorary Ear, Nose and Throat Surgeon.

Dr. L. Levi and Dr. R. E. Vance have been appointed Honorary Assistant Ear, Nose and Throat Surgeons.

Dr. G. C. Fisk has been appointed Honorary Anæsthetist.

Dr. F. Whishaw has been appointed Honorary Assistant Radiologist.

Dr. R. D. Smith has been appointed Honorary Urologist.

Dr. D. D. Arnold has been appointed Honorary Assistant Urologist.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Conrad, Peter, M.B., B.S., 1960 (Univ. Sydney), 63 O'Sullivan Road, Rose Bay.

Manollaras, Peter Theodore, M.B., B.S., 1959 (Univ. Sydney), 79 Rosehill Street, Parramatta.

The undermentioned have been elected members of the New South Wales Branch of the British Medical Association:

Chung, Robert Milton, M.B., B.S., 1960 (Univ. Sydney); Claxton, Robert Charles, M.B., B.S., 1961 (Prov. Reg.) (Univ. Sydney); Collison, David Robert, M.B., B.S., 1961 (Prov. Reg.), (Univ. Sydney); Csillag, John, M.D., 1923 (Univ. Budapest), licensed under Section 21A, *Medical Practitioners Act*, 1938-1958; Gallagher, Pamela, M.B., B.S., 1959 (Univ. Sydney); Godfrey, Howard Fuller, M.B., B.S., 1959 (Univ. Sydney); Gordon, Robert Gabriel, M.B., B.S., 1960 (Univ. Sydney); Ma, King Yuk, M.B., B.S., 1959 (Univ. Sydney); Higgins, Vincent William, M.B., B.S., 1960 (Univ. Sydney); Maynard, David Stanley, M.B., B.S., 1961 (Prov. Reg.), (Univ. Sydney); Nemes, Arpad, M.D., 1929 (Univ. Szeged, Hungary), licensed under Section 17 (2B)), *Medical Practitioners Act*, 1938-1958; Ovedoff, David Leopold, M.B., B.Ch., 1940 (Univ. Witwatersrand), M.R.C.P., 1949 (London); Rosley, Lazar Stefan, M.D., 1934 (Univ. Wilno), licensed under Section 17 (2A), *Medical Practitioners Act*, 1938-1958; Piper, Brian James, M.B., B.S., 1959 (Univ. Sydney); Plunkett, Edward Henry, M.B., B.S., 1960 (Univ. Sydney); Porter, Ronald Ernest, M.B., B.S., 1937 (Univ. Sydney), D.P.M., 1947 (Sydney); Post, John Stewart, M.B., B.S., 1961 (Prov. Reg.) (Univ. Sydney); Spivey, John Edward, M.B., B.S., 1961 (Prov. Reg.) (Univ. Sydney); Swain, Anthony William, M.B., B.S., 1961 (Prov. Reg.), (Univ. Sydney); Turner, Trevor Baxter, M.B., B.S., 1959 (Univ. Sydney); Witkin, Saul Edgar, M.B., B.Ch., 1952 (Univ. Witwatersrand); Shephard, Douglas Alexander Royden, M.B., B.S., 1961 (Prov. Reg.) (Univ. Sydney).

Deaths.

THE following deaths have been announced:

WILSON.—Norman Leslie Galloway Wilson, on January 18, 1961, at Ormond, Victoria.

ROSS.—John Ross, on January 24, 1961, at Turramurra, N.S.W.

Diary for the Month.

FEBRUARY 7.—New South Wales Branch, B.M.A.: Organization and Science Committee.
FEBRUARY 9.—New South Wales Branch, B.M.A.: Public Relations Committee.
FEBRUARY 10.—Queensland Branch, B.M.A.: Council Meeting.
FEBRUARY 13.—Victorian Branch, B.M.A.: Finance Sub-Committee.

Medical Appointments: Important Notice.

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